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THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD WITH SURVEYING AND SANITARY SUPPLEMENTS

The City Art Gallery.

WE are pleased to be able to chronicle the fact that the Corporation of the City of London seems, by all reports, to show some inclination to possess an Art Gallery worthy of the Capital City. For every sign of genuine public interest in and knowledge of Art, may we be always sufficiently thankful; but it is a question whether this proposal is of such a nature. We have, of course, grown accustomed to see all public interest in Art lavished on painting. This is easily understood, and we are not exactly envious of our brothers the painters, for such popularity has its drawbacks, and we do not quite know whether to congratulate or to condole with them. Perhaps we ought to congratulate the painters and condole with painting. We may say, however, that an interest in Art which takes this form is not altogether a healthy one, but, perhaps, in an unnatural and conventional society it is its usual expression. We hope, and try to believe, that it is a step in the right direction, and that this growing interest may soon take more real and significant form. It has been remarked that, at those times when Art has flourished and been most in touch with life and manners, but little enthusiasm is shown for museums and picture galleries—for collections of works of Art or of works of archaeological interest; that when Art becomes divorced from life this interest grows up. Now, this is easily understood when we consider that in the golden ages when Art breathed an exhilarating atmosphere, the Artist possessing full scope for his energies and being stimulated to do his utmost, was more concerned to produce, to create, than to admire the productions of his predecessors. Those to whom he appealed, possessing his creations in their own homes and daily surroundings, feeling the influence of Art in the very clothing they wore, and the plates and dishes from which they ate, would have little inclination to form picture galleries; their own and their neighbours' houses would be pictures of superior interest. While for an appeal to higher emotions there was always the embodiment of the Unseen; the Pagan Temple, or the Christian Cathedral. In our own times it is evident that a man of culture and feeling, boxed up in a terrace-house or a flat in Victoria Street, deadened with the appalling vulgarity of his surroundings, would find relief for heart and brain at the British Museum or the National Gallery. But if Art entered more into daily life his surroundings would not be vulgar, and he would not need this relief. For the sake of such men, till we can get Art in our streets and houses, by all means let us have it in galleries and museums; but the existence of such institutions, with the striking contrast they afford between the mental atmosphere within and without, does not argue a high standard of public taste. We cannot think much of the intelligence of those who can tolerate, say, the present condition of Trafalgar Square, but who can yet gush over the pictures in the National Gallery. We do not think that the person who can walk to the Gallery through this Square, quite unaffected by its commonplace monotony, is at all capable, on his arrival inside, of really appreciating a Botticelli or a Velasquez. The pleasure of an hour spent in this Gallery is, to the Artist, only equalled by

the shock experienced on coming out again. For this reason we do not see much real advance in public taste in this proposal to enlarge the present collection of pictures at the Guildhall. We think a real enthusiasm for Art on the part of the City authorities would have rather shown itself in a desire to improve their City generally; as, for instance, Cheapside, the approach to their Gallery, whose ugliness is rendered more apparent by the charming spire of Bow Church, planted in its midst, like a flower in a dustbin. The more the Arts permeate life the less need will there be for picture galleries, or even for easel pictures, though we must not say this to the painters. Much as we like a picture gallery, we think a better work would be done by the City Corporation if it devoted its energies to removing some of the eyesores with which the City abounds; instead of providing a picture gallery for the display of works of Art, rather to make the City—as every city should be—a Work of Art in itself.

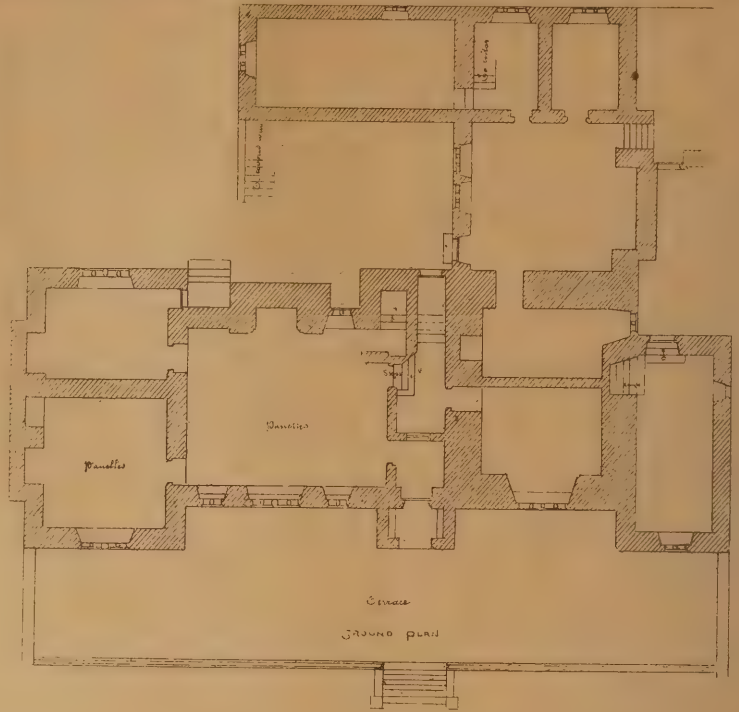
The Wallace Collection. Committee's Report.

THE Committee appointed to consider the housing of the Wallace Collection has, with one dissentient (Sir Edward Poynter), reported in favour of acquiring Hertford House and converting it into a museum with sundry alterations, the cost of which is estimated at about £90,000. What the necessary altera-

tions would be may be gathered from the following section of the report:—5. The evidence we have received goes to show that, were Hertford House made use of as a museum instead of for residential purposes, the amount of space available for the display of the collections could be further increased, and could be made amply sufficient for the purpose. It has been suggested to us that with this object the space on the ground floor to the north and west of the courtyard, now occupied by stables, coach-houses, &c., could be appropriated for new exhibition galleries. These would not have any top light, but could be well lit from both sides by windows opening into George Street, into Manchester Street, and into the central courtyard. They would largely increase the available space, and would be well suited for the exhibition of objects of Art of all kinds. Mr. Taylor, in his evidence, estimates that this alteration would increase the floor space available for exhibition purposes by about 7000 square feet, thus increasing the total available floor space from some 18,000 to some 25,000 square feet. It has also been suggested that the length of the picture galleries on the first floor could be increased by extending the skylights, thus converting the first floors of the eastern and western wings of the main building into exhibition galleries lit from above. This would involve the removal of those rooms on the second floor which are immediately above the rooms in question. It would be for consideration whether the armour should not be removed from the top-lighted galleries which it now occupies upon the first floor, its place



being taken by a part of the collection of pictures. We believe that the adoption of these suggestions, or some of them, together with minor alterations which we do not think it necessary to specify in detail, would enable the collection to be worthily exhibited, and would afford ample room for ordinary visitors, although it is possible that when the collection is first thrown open an exceptional number of visitors might be attracted, in which case special restrictions would have to be imposed for a time. Should it be thought necessary to provide means of egress other than those afforded by the main entrance in Manchester Square, additional exits could, without difficulty, be contrived on the eastern and western as well as the northern sides of the block occupied by the house and offices. The alternative suggestion, to house the Wallace collection in immediate proximity to the National Gallery, is rejected on the ground that the only available site, that at present occupied by Messrs. Hampton's business premises, could only be acquired after about five or six years' delay, and at a cost of between £300,000 and £350,000. The advantages of this plan, the Committee seem to think, are not so great as to justify the additional expenditure. The conclusion, therefore, is to acquire Hertford House. The signatories of this report are Lord Lansdowne, Sir William Harcourt, Sir Francis Mowatt, Mr. A. B. F. Mitford, Mr. Walter Armstrong, Mr. Alfred de Rothschild, and Mr. Alfred Waterhouse. Sir Edward Poynter, the President of the Royal Academy, however, pleads for the alternative suggestion: 3. But I think that the immense advantage to the public in having the two collections, each of which supplements the other in its weak points, in close proximity, is not sufficiently dwelt upon in the report. An opportunity is presented for making what would certainly be the most completely representative picture gallery in the world, affording unrivalled opportunities for study in every school of painting, and the whole forming a collection of unequalled magnificence which any nation would be proud to possess. This opportunity would be afforded by constructing a museum as suggested in Paragraph 11 of the Report, on the site to the west of the Trafalgar Square Galleries, at present

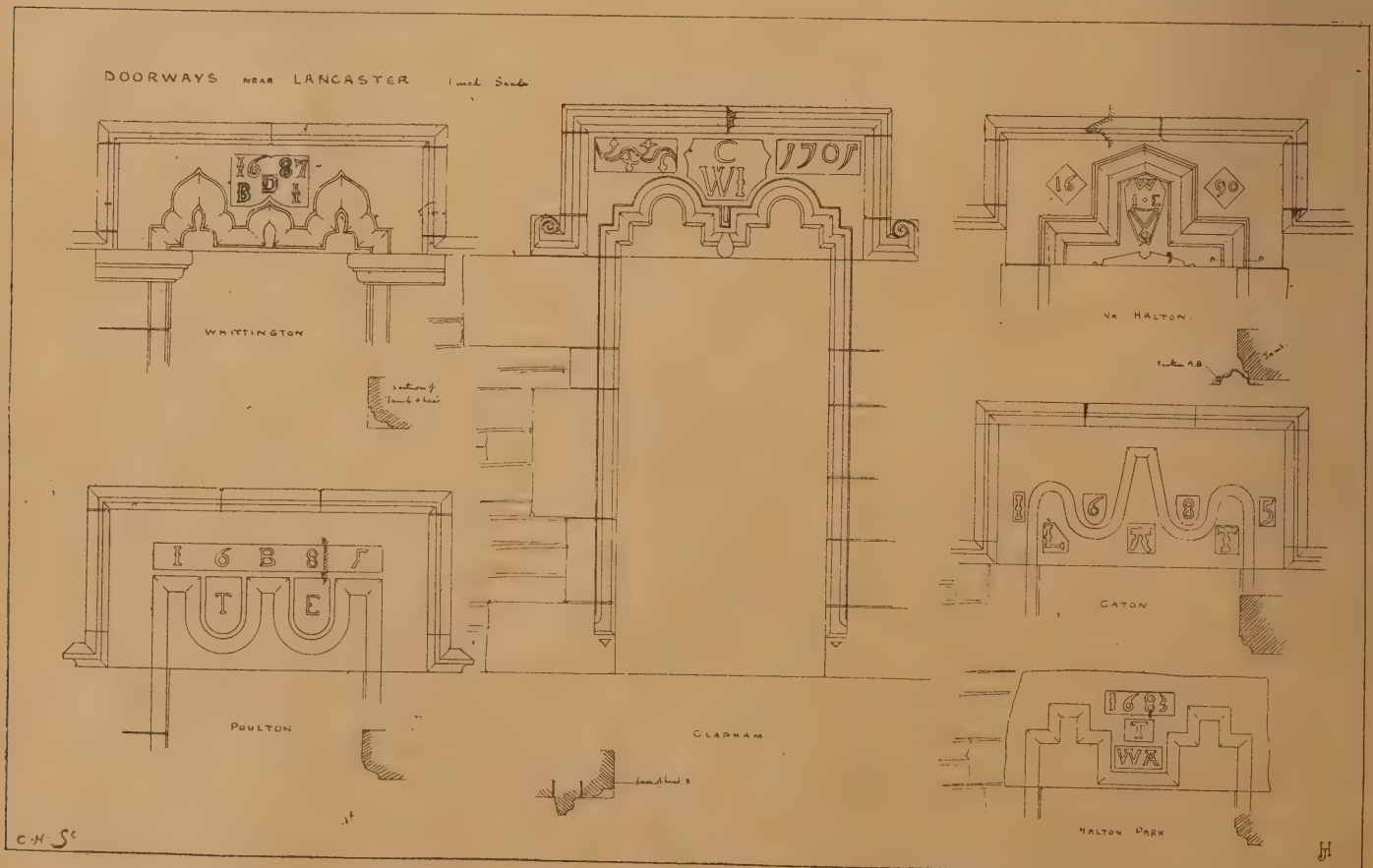


WITH THE A. A. GROUND PLAN OF BORWICK HALL.

occupied by Messrs. Hampton's and other premises. This scheme is, doubtless, far more costly than the proposed purchase and alterations of Hertford House; but it is quite certain that with the growing impatience of the public at the risk of injury by fire to the National Gallery, incurred by the immediate proximity of the furniture shops and warehouses, the expense of acquiring this site must sooner or later be incurred. The danger is a real one, and cannot be shirked. The expense therefore of building a museum for the Wallace collection on this site may be said to be that of providing the building, roughly estimated at

£125,000, as against £90,000, the estimated cost of purchasing and altering Hertford House. Hertford House, he points out, would have to be entirely rearranged, and would, therefore, not be Hertford House, as Sir Richard Wallace left it. We have already expressed our opinion that there is a great deal to be said for Sir Edward Poynter's proposal.

LORD DYSART has promised to subscribe £1000 towards the restoration of the Parish Church at Silk Willoughby, near Sleaford.



DRAWN BY J. HARRISON FOR THE ABBEY SQUARE SKETCH BOOK.

THE ARCHITECTURAL ASSOCIATION TOUR.

LANCASTER AND THE NEIGHBOURHOOD.

THE Architectural Association commenced its twenty-eighth annual excursion on Monday, the 9th inst. After so many years spent in the south, the Committee decided this year to visit a district entirely new to many of the members—"Time-honoured Lancaster." Few places can boast of such a history. Prominent in our annals, and closely connected with the Royal Houses of England, Lancaster formed the basis of many an expedition against the Scots in border warfare. In the history of the town the castle stands foremost, like a grim sentinel watching over the interests of the town, although in a different sense, it being now used as a prison. It is undoubtedly of Roman origin, a camp having existed

residence, Lancaster, now the centre of the wealth of the county, became noted for its Court splendours and the magnificence of its tournaments. The many changes which passed over the castle during the Wars of the Roses eventually caused it to fall into decay until the reign of Queen Elizabeth, when on the threatened invasion of England by Spain the castle was hastily repaired and fortified. And on the night of July 19th, 1598, from the keep shone forth the blaze of the beacon that announced the advent of the Spanish Armada. Readers of Harrison Ainsworth's "Lancashire Witches" will recall the great trial which took place in 1612, when ten out of the twenty witches tried were condemned to death.

In 1617 James I. passed a night here, journeying from Scotland to London, after having attempted to model the Scottish Church to the forms of English Episcopacy; and Charles II., passing through with his army on August 12th, 1651, just previous to the Battle of Worcester, ordered the release of the prisoners in the castle. The situation of the castle, as

and crowned on either side by watch turrets, belongs to the period of Henry VII. The niche above the outer arch, with the shields on either side, has the indication of having been inserted. The statue of John o' Gaunt was placed in the niche in 1822. The gateway was defended by a drawbridge over the moat—the chain holes may be seen in the outer archway—the bridge being raised and lowered by a windlass in the chamber above. Beneath the ground level are the dungeons, the roofs of which are of curious construction, being composed of concrete upon a framework of twigs or osiers, portions of which are still embedded, and may be picked out, though almost reduced to dust. The witches confined in these dungeons must have had a most inconvenient time, as they are completely dark and very badly ventilated. However, one does not expect witches to be accorded the best accommodation. St. Mary's Church, Lancaster, close to the castle, is built in the Perpendicular style, and contains some very handsome stalls. There are not many



THE A. A. TOUR. BORWICK HALL. DRAWN BY E. TURNER FOR THE JOHN O'GAUNT SKETCH BOOK.

here as early as 79 A.D. Little is known, however, of its history until the Norman Conquest, when the castle was bestowed by William the Conqueror on Roger de Poitou, who was the builder of the Norman Keep. The said Roger being banished for disloyalty, Stephen bestowed the earldom on his son William. Henry II. on his accession took Lancaster into his possession and eventually caused the castle to become a prison for malefactors. In 1199 Hubert de Burgh, Archbishop of Canterbury, besieged the castle, and in 1204 John received the French Ambassadors here. During his reign the moat was constructed round the castle, a portion of which remained until 1850, when it was filled up. John granted to the town its first charter, afterwards ratified by Edward III. After the unfortunate defeat of Edward II. at the Battle of Bannockburn, the Scots, in their victorious march southward, proceeded as far as Lancaster, burning the town and destroying the castle.

At the beginning of the fifteenth century, when Henry IV. used the castle as a royal

seen from the River Lune, is very imposing, and, if we recollect rightly, has formed more than one subject for the pencil of Turner.

We give a plan of the castle with the present issue. The entrance, with its two flanking towers and machicolated battlements, is probably, in its beautiful proportion, second to none in England, and forms a good study of the barbarous methods of warfare our ancestors adopted—pouring hot lead by the be-seiged upon the besiegers below seems to have been a pleasant little diversion of the garrison, judging by the many arrangements to be seen. King John was the builder of the gateway, and the low segmental arched head, splayed moulds, the nail head ornamented label and imposts, all belong to the early part of the thirteenth century, as also does the lower part of the gateway facing the courtyard. The outer archway, with its flanking, semi-octagonal towers, may be attributed to John o' Gaunt; the upper part, above the niche, with heavy projecting corbels supporting the battlements, pierced for the descent of missiles.

ancient examples of Architecture in Lancaster, but this deficiency is made up by the amount of excellent modern work, principally by Messrs. Austin and Paley, foremost among which we admire the Storey Institute, a stone building erected some few years since, the detail of which, almost Scotch in character, well repays close study. The Ripley Hospital Chapel, by the same Architects, is an admirable specimen of Decorated Gothic, the chancel has a stone groined ceiling in two bays divided by a clustered shaft on either side, the stonework between the ribs being relieved by bands of Runcorn stone. The external stonework for both dressing and walling is of Lancaster stone, and the internal ashlar throughout is of Stourton. The whole of this district contains specimens of the Church Architecture of this same firm, and it is difficult to find a village in which some of their work is not to be found. During our visit we had the pleasure of seeing "Longlands," whose hospitable owner—of stained glass fame—very kindly showed us round. The house is

of plain red brick, and is surrounded by a charmingly laid out garden.

At Morecambe, three miles from Lancaster, is the Church of St. Laurence, by Messrs. Paley and Austin, well worthy of a visit, and continuing the road through Morecambe we come to Heysham, a charming village overlooking the waters of Morecambe Bay. We have seen few Churches so picturesquely situated. It gives us an object lesson in plain village Church Architecture. Close to the Church is the old Hall, with its flat, typical gables, a truly delightful subject for the water-colourist.

In giving these brief notes on Lancaster and its immediate neighbourhood first, we have perhaps not adhered to the strict letter of the programme, for the tour commenced with Claughton Hall (pronounced Clupton), situated on the Kirby Lonsdale road, about six miles from Lancaster. On our way thither we noticed the aqueduct carrying the Lancaster Canal over the Lune, built by Stevens; and across the river on our left we see Halton Church. Claughton Hall is now very much gone to ruin. It is supposed to have been built by the Crofts—*temp.* James I. It has two high gables. The Church has a decorated east window, and a quaint bell cote containing one of the oldest bells in England. Continuing our route, we come to Hornby Church, some two miles further on. Evidence of the Church's very early origin is given by a huge Anglo-Saxon monolithic cross. Of the old Church little now remains, the nave having been rebuilt in 1889. The great feature of interest at Hornby is the castle, originally founded after the Conquest, now, unfortunately, much modernised. The interest of Hornby centres in its former famous owner, Sir Edward Stanley, of Flodden fame, who alone, of all its possessors, has left his mark behind him. The grand old keep bears his name on its base, with the motto, *Glav et gant*, and the Stanley badge, the eagle's claw.

After a ride of some five miles Thurland Castle is reached, situated in the broad valley of the Lune. The founders of the castle, the Tunstall family, had held lands in Lonsdale from the time of Henry II., and in the reign of Henry IV. they obtained license to fortify



HEYSHAM CHURCH. FROM A PHOTOGRAPH BY F. TURNER, MORECAMBE.

Sir Thomas Tunstall, to whom the license was granted, had fought in the French wars, and was present at Agincourt, and from him a century later the estate passed to Bryan Tunstall, the "stainless knight of Flodden" mentioned by Sir Walter Scott, when Surrey is describing to Marmion the disposition of the English forces before the memorable battle of Flodden. His son, Marmaduke Tunstall, took a leading part in the dissolution of the monasteries some twenty years later. The castle was in ruins until 1663, when it was partly restored by John Girdlington. From the Girdlington family it passed by sale to the Welch family, and from them to Miles North, whose descendant sold the castle and estates in 1881 to the present possessor, Colonel Lees. The castle is surrounded by a moat about

8ft. wide. The entrance on the west side is over a narrow bridge, immediately on the left of which are the remains of an old tower. The castle was further restored in 1812, 1827, 1889, and 1890. We cannot but reflect on the many valiant deeds of the former owners of Thurland and the knight who in the fifteenth century fought so bravely for the red rose of Lancaster; the "Stainless Warrior," whose name is closely associated with the fatal field of Flodden; and of the chivalrous knight, Sir John Girdlington, who fell in the battle of Melton Mowbray, fighting for the king.

Tunstall Church, a few minutes' walk from the castle, is supposed to be the second or third erection on this site—the effigy of the founder stands on the south side of the altar-rail. The Church will doubtless prove of



PARK HALL : LANCASHIRE :

WITH THE A. A. IN LANCASHIRE. FROM THE DRAWING BY J. HARRISON IN THE JOHN O'GAUNT SKETCH BOOK.

interest to readers of Jane Eyre, who will recognise the structure under the disguise of Brocklebury Church. Casterton, where she was at school, is in the neighbourhood.

From Tunstall, four miles further on, we reach Kirby Lonsdale, passing the "Devil's Bridge," the origin of which is unknown; it has existed, however, since before 1275. Kirby Lonsdale Church is largely of Norman origin; it was restored by the late E. G. Paley in 1865. From the north-east corner of the churchyard is a view described by Mr. Ruskin as "one of the loveliest in England, and therefore in the world."

Tuesday was devoted to a district the other side of Lancaster Sands; the four places visited, viz., Cark, Cartmel, Holker, and Grange, being within a radius of 3 miles. The district is now approached by train from Lancaster, but formerly a road existed across the sands some 11 miles long—the monks of Cartmel possessing the sole right of guiding travellers across; a dangerous journey, considering that at high water the sands are covered by 17ft. of water.

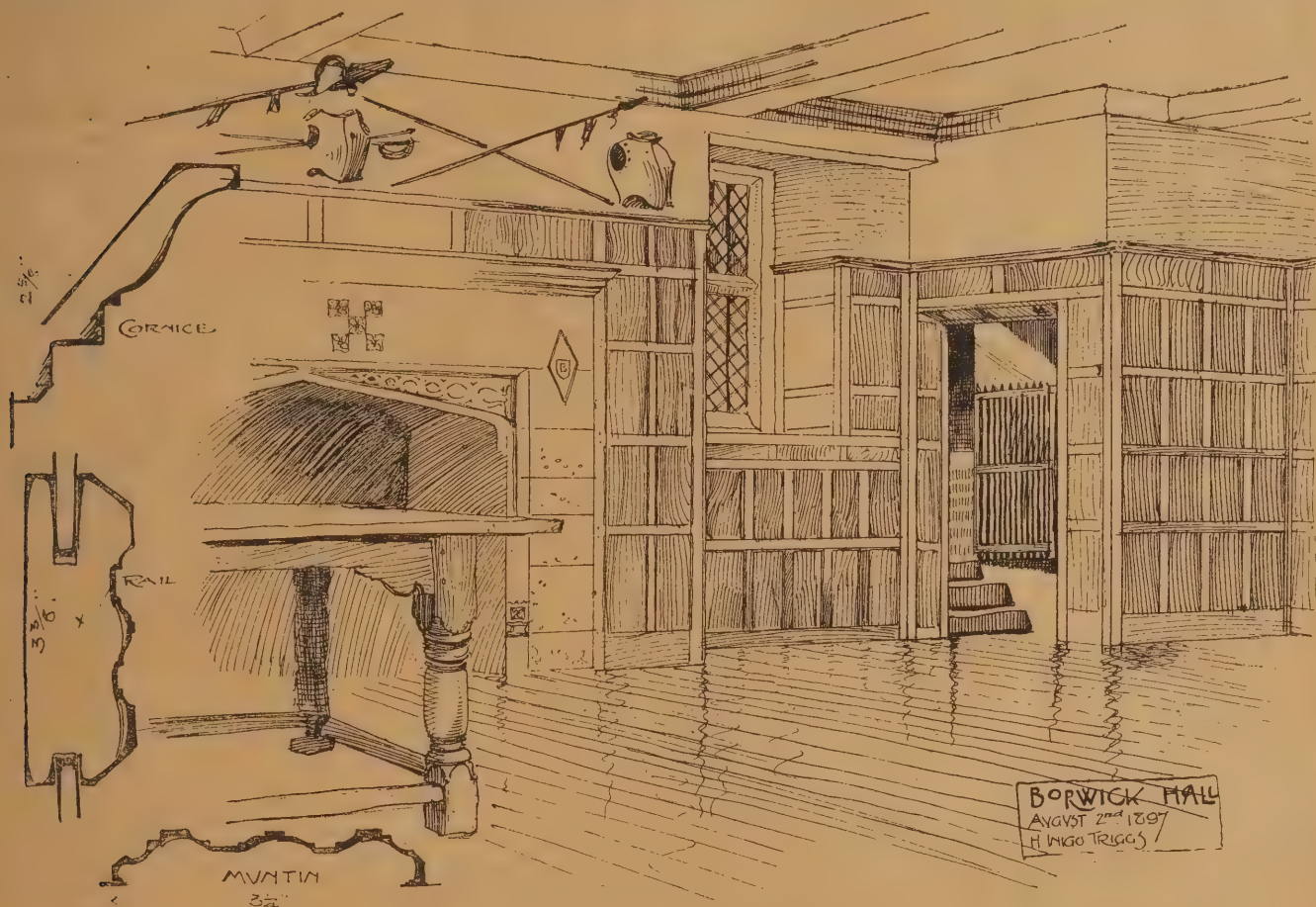
down owing to the fact that it was the Parish Church as well as the Church of the convent. The building then remained roofless for nearly eighty years. 1561 saw the rectory of Cartmel appropriated by the Crown and annexed to the See of Chester. In 1609 they were leased to the Preston family, owners of Holker, and have thus descended into the possession of the Devonshire family, the present owners. In 1830 the restoration was commenced, and has continued intermittently until recent years, principally under the late E. G. Paley.

The Church is cruciform, consisting of choir with side aisles or chapels, transepts, and nave with aisles. The exterior has a dignified aspect, the tower presenting a most striking feature, the only example of its kind in the kingdom, consisting "of a square placed on a square diagonally to its base." The lower portion just above the arches is the original structure, but at a later period it has been surmounted by a tower erected as a belfry. It is constructed by throwing pointed arches across the angles of the lower tower. The Church amongst other possessions has a large

panelled room, shown in one of our sketches, through which access is obtained to the staircase. On the first floor the front room to the left was formerly the domestic chapel, with a priests' room adjoining, from which there is said to be a trap-door and secret passage, though we could discover neither.

The square Peel tower, round which the other buildings group, appears to be of an earlier date than 1595. There are examples of similar Peel's at Arnside and Wraysholme. Ascending the staircase, at the top of which is carved the name of the mason, Alexander Brinsmead, and the date, 1595, we are on the leads, and a broad view of the magnificent country opens out on all sides—Ingleborough Peak to the N.E., and Warton Crag, with the picturesque Church nestling at its foot, whilst beyond is a long view of the Lancaster sands. King Charles II. visited Borwick in August, 1651, on his way to the Battle of Worcester, and it was in this historic Hall that they concealed Lord Clarendon whilst he was writing the history of the Rebellion.

The face of nearly all the external walls is



WITH THE A. A. IN LANCASHIRE.

Our first stoppage was at Cark, celebrated for its cockles. The Hall is a fair example of the old Manor House, and has belonged to the present owner by hereditary descent at least since the days of Queen Elizabeth. It has not been used as a residence since 1783, but has been kept unaltered in its present state as a farmhouse. In 1582 the Hall belonged to Thomas Pickering. The property passed to Robert Curwen, on whose death Cark was left to his nephew, Rawlinson, who was largely instrumental in the arrest of George Fox, the founder of the Quakers. The front of the Hall was erected in the beginning of the eighteenth century, the back portion being probably fifty years earlier.

Cartmel Priory, some two miles from Cark, was founded in 1188 by William Mareshal, Earl of Pembroke, and soon became a very large and important establishment. It was dissolved, however, in 1537, when the whole of the conventional buildings, with the exception of the Priory gateway, were demolished. The Church itself escaped being wholly pulled

parochial umbrella, like a carriage umbrella. The original use was doubtless to protect the minister at funerals.

Holker Hall is the seat of Victor Cavenish, M.P., the nephew of the Duke of Devonshire, and was the favourite residence of the late Duke. The present building was erected from the designs of Messrs. Austin and Paley, the previous building having been destroyed by fire.

Borwick Hall, the subject of three of our sketches, is situated about three miles from Carnforth. It was built by a rich weaver of Kendal, William Bindloss by name, in 1595. Passing by marriage into the Strickland family, it was purchased by the present owners.

Passing through the Gate House, dating from 1650, and forming part of a long range of farm buildings extending from the right wing of the house, we are in a sort of courtyard, and immediately to our left stands the Hall, raised on a terrace, with well-proportioned balustrade, the balusters spaced wide apart. The porch admits to a fine old

rendered with rough cast, which finishes in a line a few inches from the external angles and openings showing the stone joints.

(To be continued.)

Two blocks of handsomely-carved and traceried seating and a prayer desk, all in specially-selected English oak, have recently been fixed in the chancel of the Parish Church of Stoke Gabriel, Devon, for the Ecclesiastical Commissioners, from designs of Messrs. Christian, Caroe, and Purday. The work has been entrusted to Mr. W. Dart, Ecclesiastical Art Works, Crediton.

CHRIST CHURCH, North Brixton, is now an old building, and will not stand any further repairs, so it has been decided to rebuild it, and also to erect a parochial hall and infants' school, at a total cost of £17,300. Towards this sum £5400 has already been subscribed and invested, and about £2000 more has been promised. The foundation stone of the new Church was laid a few days since.

ART IN WALES.

IN no feature has the Welsh National Eisteddfod of the present year made such a marvellous stride as on the Art side. The exhibition of various forms of artistic production which is on view in one of the permanent market buildings at Newport, alongside the Eisteddfod building, is the symbol of a Renaissance of Welsh Art, brought up to date. The pictures and statuary are housed as well as the circumstances can reasonably admit. The results of the artistic uplifting of the Eisteddfod has had, at least, one result. It has "discovered" some half-dozen or more amateur Artists in Wales, who not only were not known before, but who, but for this scheme might not have had sufficient assurance to have ever sent in their works for exhibition. Now joining, as they should, some of the well-known Art societies of the Principality, they may easily come to the front. The South Wales Art Society or kindred institutions will, no doubt, give several of them the entry to further artistic channels. The Eisteddfod has in giving

ENCOURAGEMENT TO ARTISTIC WORK

done a distinctly useful work. To come to details, eisteddfodwyr and students and followers of Art will find their attention held by a striking water-colour painting of "Hwfa Mon," the arch-druid. It is the work of Professor Herkomer, and there are some experts who do not hesitate to say that it is the very finest thing the professor has ever done in water colour. On a background, happily suggestive of Welsh scenery, the arch-druid, clad as Herkomer himself desired, is shown emerging from a cromlech, and the fine, noble-looking figure is instinct and almost moving with the power and dignity with which the painter, as much as anyone, has invested the arch-druidical office. There is command in every line, and the very gesture of this power is almost conveyed. A critic of high status said that the picture alone is worth a pilgrimage to Newport from the remotest nook of Wales. Among the other exhibits of Professor Herkomer are four pewter pots and



CARTMEL CHURCH. FROM A PHOTOGRAPH BY F. TURNER, MORECAMBE.

the fulfilment of it by others brings its own ample reward. Visitors will be struck with the great allegory (No. 13), painted by Mr. Edgar H. Thomas, of Cardiff, which occupies a place of honour. It is a marvellous production, entitled "Intellectual Blindness following Old Thoughts." This clever Artist has never produced so strong and interesting a picture before, and it can only be regretted that he allows his talent at times to flow into misguided channels. For this picture there can be nothing but praise. It is strongly and truly painted, and we imagine that there is no work in the Exhibition that will take a higher place. Nos. 6 and 7, beautiful little paintings by P. F. Thomas, of Haverfordwest, entitled "Under the Lamp" and "Black and

Mr. Hagarty has done, and is sure to be much admired. The same Artist has several beautiful things in the Art Union section (for the drawings)—landscapes of different kinds, showing Nature in her varying moods, all produced with subtle effect. Probably the district has no finer exponent of landscape treatment. Miss E. Thatcher, of Newport, shows some very nice pictures. A pupil of the local School of Art, she has had hung a fine study of chrysanthemums (No. 27), painted from Nature at Belle Vue Park. Her "Fish and Game" (No. 26) is also a very strong production of still life. The Artist shows great cleverness in her treatment of details. "Snowdon," by Hamilton Marr, A.R.C.A., is a picture in which the distance is well dealt with, and sheep are



WITH THE A. A. IN LANCASHIRE. HOLKER HALL. FROM A PHOTOGRAPH BY F. TURNER, MORECAMBE.

four silver spoons, all executed by himself in *repoussé*, with a breadth of design and accuracy and delicacy of execution which command admiration. These specimens are brought to Newport by the Professor in order to show that

EVEN THESE SIMPLE OBJECTS

are worthy of the attention of the great master, and so to stimulate the youth of Wales to work upon implements and utensils of everyday use. It is a creditable desire, and

White," are charming. Mr. Parker Hagarty has a big work (No. 51), entitled "Woodlands," showing a forest scene, with the autumn colourings—one of his well-known subjects of bracken, beech, and birch trees—painted with great strength and feeling. Another of his (No. 82), "On the Road to St. Bride's, near Newport," is again a beautiful landscape, the scene being on the Wentloog Moors. The reens show strong, and ducks are cleverly painted, and a team of horses steaming on a summer day. This is one of the best that

very cleverly rendered, but the foreground to the right is rather commonplace and weak. Mr. G. F. Harris, of Merthyr, has a number of pictures which are very creditable. A small work in still life, showing tomatoes and a melon, is very clever. His "Usk Trout" is a painting which shows great promise. A very fine canvas is the "Babes in the Wood," by Mia A. Brown, *née* Mia Edwards, of Abergavenny, a pupil of Professor Herkomer. The wood scene in shadow, with glints of setting sunlight cleverly suggested through the trees, is finely

depicted. The figures of the babes are correctly drawn, and the daffodils in the foreground give a pleasant key-note to the harmony of the whole. The work of Mr. Christopher O. Williams, of Maesteg, in "The Hendre Farm," shows considerable strength and promise in a broadly painted landscape. Mr. W. D. Williams, of Maesteg, in his landscape shows a capital evening effect. There is great promise in it. A grand seascape is exhibited by Mr. W. J. Corah, of Mochdre, with much fine colour, depicting the surging billows dashing on the shore. In "The Cardiff School of Art" Mr. E. H. Thomas shows much executive power. It is a picture that will be sure to gain attention. His little work, "Approaching Winter on the Glamorgan Canal," however, is very different. It is almost impossible to believe that this work is by the same hand as the allegorical one previously noticed. The

BLACK OPAQUE SHADOWS AND REFLECTIONS are next to impossible in Nature. The picture is far beneath this acknowledged Welsh

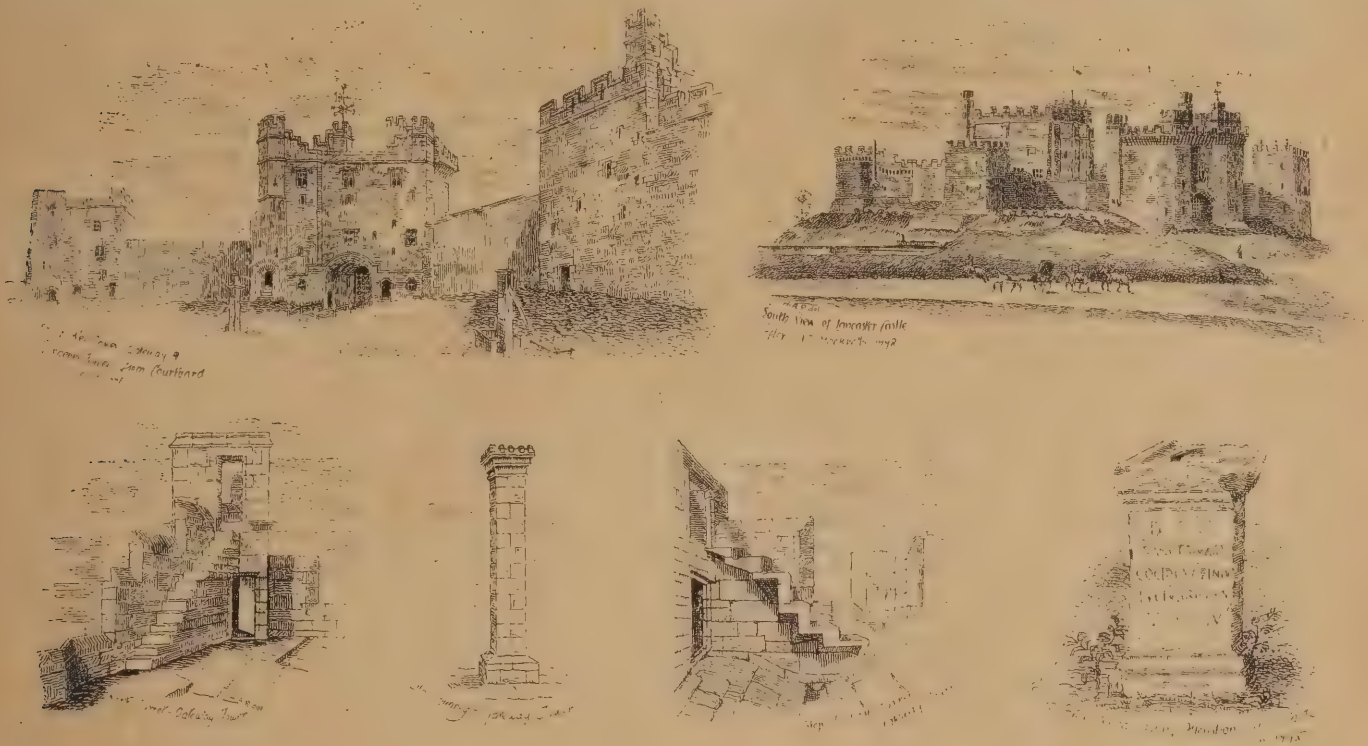
"A Still Salt Pool Locked in with Bars of Sand," shows a picture that will be remembered, as it was exhibited at the Royal Academy, and also at the South Wales Art Society's Exhibition at Cardiff. Probably, there are few exponents of water-colours who can produce such

FINE EFFECTS WITH SHINGLE

and objects on the sea-shore as Mr. Cockran, who is one of the rising men amongst English water-colour Artists. Under the nom-de-plume "Sienna," one of the cleverest water-colours is shown, entitled "May Day." Mr. S. Towers, of Conway, shows in "A Welsh Hamlet" a most beautiful work. He depicts a country lane, with a cottage and brilliant garden flowers, and a figure with a milk-pail, carrying a child in arms. "The Nurse," by Mr. B. A. Pugh, of Aberystwith, will easily commend itself. "Idwal" shows two clever little portraits—viz., the Dean of Bangor and "The Parish Clerk." Amongst other Artists in the Art Union section, Miss

Riches has already taken a silver and a bronze medal at South Kensington, and bids fair to obtain a high position in the Artistic world if she continues her studies. In black and white there are some very clever works, notably one by Mr. B. A. Pugh, Aberystwith, entitled "For Joy or Sorrow." Photographs are well represented, some of the snap-shots being clever. A photograph of a child leaving her cot is exquisitely done. In poster work there are some fine and novel designs for colour printing, suitable more especially for the Eisteddfod. In needlework, the embroidered table-covers are very handsome, and some of the hand-made lace is also fine. An afternoon tea-cloth, embroidered with hand-made lace, is specially praiseworthy.

THE new Theatre Royal, Worthing, has just been opened. The theatre stands on the site of the old Assembly Rooms, the gift to the town of the late Sir Robert Loder. The building is admirably planned.



Shields on the Gateway Tower



Royal Arms: 1405-1409.
(Emp. Henry IV)



Prince of Wales' Arms
(Henry V)



as Duke of Lancaster



Arms of John of Gaunt



as King of Castile & Leon

WITH THE A. A. IN LANCASHIRE. LANCASTER CASTLE. FROM THE ORIGINAL DRAWING BY H. A. PALEY.

Artist's capacities. Mr. E. Prydderch, of Shrewsbury, shows in "Ruins of Theatre at Taormina and Mount Etna," a very carefully painted scene, the distance being particularly gorgeous. The details of the ruins in the foreground are most carefully depicted, though some of the figures are weak. The same Artist also shows "Glasgwmisaf," a fine water-colour picture. The effect of sunbeams shining upon and illuminating the valley is very choice. It is an excellent painting, with a deal of poetic feeling, and is sure to be one of the attractions of the Exhibition. "On the Edw," by Mr. Walter W. Goddard, of Swansea, is a very pretty landscape, suggestive of the Vale of Neath. "Summer," by Mr. A. Netherwood, of Llandudno, has some well rendered figures, haymaking. The horses are painted with considerable truth. The distance and colour also show some taste. Mr. G. Cockran, R.C.A., Anglesea, in the water-colour picture,

Ethel Woods, of Llandaff Place, Cardiff, has some roses, painted in her well-known charming manner. Miss Gwennie Griffiths, of Swansea, who has studied in Paris, shows very clever portraits. This young lady, we should say, is destined to take a high place in local Art. "Clovell Harbour," by Mr. J. M. Staniforth, is a beautiful little landscape sketch. Mr. J. G. Beetlestone, in addition to the picture of Rothesay Castle—one of Lord Bute's haunted houses—where the ghost is seen at the window in the evening shades, and which shows clever moonlight effects, the towers having

RECEIVED VERY SUBTLE TREATMENT,

has several very clever works at the Exhibition. Amongst the other studies, there is in sculpture an excellent representation by Miss Mabel Riches of her father, Mr. T. H. Riches, of Cardiff, in clay modelling. It is a clever portrait, and has excellent characteristics. Miss

Miss C. E. King recently laid the memorial stone of a new Conservative Club for Oxtou, situated in Village Road, Oxtou. Mr. Frank Holmes has designed the club, which is to be a two-story building, with bowling green attached.

THE Scottish Faculty of Actuaries has undertaken to fill one of the niches in the exterior of the Scottish National Portrait Gallery, at Edinburgh, with a statue of John Napier, the inventor of logarithms.

At Pwllheli there has just been added what is claimed to be the finest Art gallery in Wales. It is housed at the Glynweddw Hall, at the far end of the beach, which is reached by a newly-constructed marine tramway. The gallery contains over 400 paintings and drawings, and includes works by Turner, David Cox, Prout, P. de Wint, Stanfield, Muller, Copley Fielding, J. B. Pyne, J. Syer Nasmyth, S. Bough, D. Teniers, Cooper, and Elmore.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
August 11th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Government has had a record week of concession to Art. First, £80,000 for the pur-

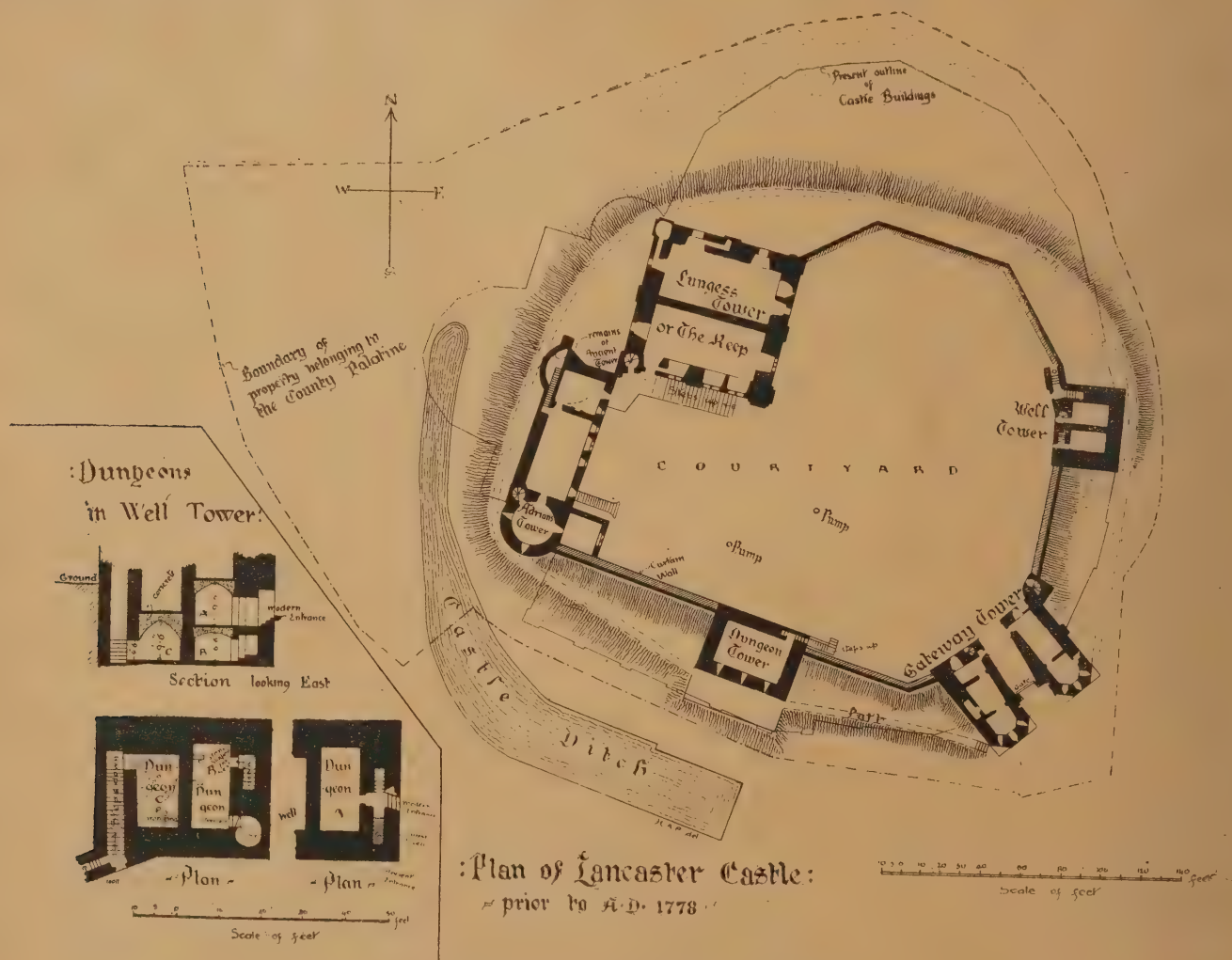
fully indicated. In other words, the base will be a raised map of Guernsey. It is said, however, that the Victor Hugo cult, once so flourishing in France, is decaying.

ONE by one the old houses for which Aldersgate Street was formerly noted have disappeared, and the last of them, Lauderdale House, is now marked for demolition at an early date. It is not a beautiful structure; it can scarcely be called interesting except for its historical associations. It is a very plain brick building, in striking contrast with some of the handsome premises close by, and in its present condition is anything but suggestive of the fact that it was at one time the residence of a rich nobleman. In the seventeenth century, however, it was the town house of John Maitland, second earl of that name, afterwards created Marquis of March, Duke of Lauderdale, and Earl of Guildford, and K.G. The Duke had another house at Highgate, and one also at Ham; but when he acquired them, and whether having done so he abandoned his residence in the city, is not clear.

RAPID progress is being made with the work

museum will be well equipped. The alterations to this portion of the castle are somewhat extensive, but every precaution is being taken so as not to interfere with the grandeur of the old fort. The programme of alterations includes the remodelling of the gatehouse and the conversion of the guardroom and portcullis chamber into a museum.

THE gradual building up of a representative collection of British Art in the Louvre goes on steadily. One of the latest additions has been a portrait by Romney of Sir John Stanley, a fairly good example of the Artist. The money available for purchases for the Louvre is so limited in amount that important pictures can only be occasionally acquired, and the desire of the French Art authorities to secure a comprehensive gathering of the works of British masters cannot easily be gratified. Still, in spite of the many difficulties in the way, a fair number of pictures worthy of attention have been brought together, and canvases by Lawrence, Gainsborough, Bonington, Raeburn, Constable, and now Romney, represent agreeably enough the Art of this country.



FROM THE ORIGINAL DRAWING BY H. A. PALEY.

chase of Hertford House; next, a promise that the buildings adjoining the National Gallery shall be done away with; and lastly, a minute vote of £8000, wherewith to do something towards the preservation from fire of the South Kensington Museum.

VICTOR HUGO's statue, the unveiling of which is to be one of the events of the 1900 Universal Exhibition at Paris, is to be a somewhat sensational piece of work. The base of the statue, made of granite, will be shaped like the poet and novelist's place of exile for eighteen years, Guernsey. The coast line, the heights, courses of streams, &c., will be faith-

of erecting the memorial to the late Prince Henry of Battenburg, Governor of the Isle of Wight, at Carisbrooke Castle, by the conversion of the old gateway of the ancient fort into a museum for the reception of interesting objects connected with the island and with the history of the castle itself. Princess Henry of Battenburg, the Lady Governor of the island, is taking a keen interest in the work, and will, it is stated, within the next few days, visit the scene of operations, and make certain requests as to various portions of the work. It is hoped that during her brief stay in the Isle of Wight at this period of the year the work will be almost completed, and that before long the

SOUTH KENSINGTON comes in, from time to time, for a good many harsh criticisms at the hands of superior persons, but no one who visits its annual exhibitions of pupils' work year after year can fail to be impressed with the enormous good it is doing in encouraging the development of the practical side of Art in this country. In the Exhibition which opened at the Museum a few days ago, for instance, quite half the not inconsiderable space devoted to the display is taken up with exhibits of designs produced by the students suitable for utilisation in some branch of industry. Many of the designs for wall-papers and textile fabrics display real originality and a degree

of artistic feeling which would not have been considered possible a few years ago. The same remark applies to the designs for ornamental ironwork and for the more delicate forms of metal work embraced in the silversmiths and electro-platers' trades. But, perhaps, the feature of all others of the Exhibition which deserves notice is the display of designs for lace work. Some of these are exceedingly beautiful, and indicate a surprising degree of versatility on the part of those who executed them. While the Science and Art Department can show such results for its labours, it will stand in need of little defence.

As showing the extent of the operations of the Department, it may be mentioned that no fewer than 50,255 separate exhibits from 281 Schools of Art, were sent in, together with 35,560 exhibits from 298 science schools, and 11,796 exhibits from 449 art classes. Amongst the successful exhibitors 16 gold medals, 94 silver medals, 255 bronze medals, and 510 prize books were distributed, while in addition, 3 gold, 24 silver, 280 bronze medals, and 95 book prizes were awarded to students of the Royal College of Art.

The publication of the report of the Committee appointed to consider the question of housing the Wallace Collection, and the announcement that a supplementary vote of £80,000 has been asked for by the Government for the purchase and re-building of Hertford House, leave no doubt as to the course that is to be pursued with regard to this important addition to the national Art possessions. The decision of the Committee can, however, only be regarded as an unfortunate one, made with a very narrow appreciation of the exigencies of the position; and it is in the protest of Sir Edward Poynter, who at least takes a wide and judicious view of the question, that the proper solution of the difficulty that has arisen is to be found. The Committee seems to have been influenced by motives of false economy, and by an idea that the district of London north of Oxford Street is in need of a lounge where idlers may collect. Sir Edward, on the other hand, regards the Wallace Collection as educationally of the utmost value, and therefore asks that it should be placed where it will be most useful to students—in close proximity to the National Gallery itself.

WHAT must be most annoying to everyone who views the question of housing the national pictures with the foresight that is characteristic of Sir Edward Poynter, is the fact that, by this make-shift arrangement with regard to Hertford House, a great opportunity has been lost. Nothing more is likely to be done for some time to bring about a reasonable classification and grouping of our scattered collections, and the present unsatisfactory condition of the National Gallery must continue for an indefinite period. The only ray of hope which is given us is that by a pleasant coincidence Mr. Balfour has announced that the St. George's Barracks are to be removed as soon as the new barrack buildings at Millbank are completed. How long it will be before this desirable improvement is effected it is, of course, impossible to say, but at least there is consolation in this definite promise.

MR. THOMAS WRIGHTSON writes: "The attention of the public has been attracted to the disastrous collapse of the Embabeh Bridge over the Nile by a recently published report from Lord Cromer to Lord Salisbury, with notes from various Egyptian officials. Some years ago I went on two occasions for my firm of Head, Wrightson, and Co., to Egypt, to obtain particulars of bridges required over the Nile, and took great pains in making complete plans on which to tender in conformity with the general specification of the railway administration. I found on both occasions that, through there being no expert employed who could judge the relative merits of the designs submitted, the competition was an unfair one. At the time when tenders for the next bridge were invited I was in Parlia-

ment, and did all I could with the Foreign Office to get an alteration made in the system of taking tenders, but without effect. My firm, therefore, decided to retire from competition until the system of inviting tenders was altered. In order to put our decision on record, a letter was written, and we were joined in its signature by many of the largest bridge builders in the country. We might have been content to let the matter rest, even after the collapse of the Embabeh Bridge had entirely justified our attitude, but when British bridge builders are asked to amend their ways, to become more enterprising, and are in effect told that they do not understand their business, it appears to be high time that the reasons for their withdrawal from competition should be made public."

VISITORS to Ripon will no doubt remember besides the Minster, whose towers, "four square to all the winds of heaven," appear to dominate the city as the train approaches the station, the quaint little market-place, with its grey, time-worn obelisk. Around the uneven pebbly pavement of the square are ranged shops, inns, and official premises, and of the last the most conspicuous is a building with a pillared façade, and the legend upon it, "Except ye Lord keep ye cittie, ye wakeman waketh in vain." This is the Town Hall, and has served that purpose for many years, but, strangely enough, it has only just become the property of the city. The building was erected just about a hundred years ago by Mrs. Allanson, at that time the lady of Studley, and the official character then attributed to it is attested by the fact that the ceremony of laying the foundation-stone was performed by the Mayor. The frontage to the market-place measures 47ft., and the height of the building to the top of the pediment is 50ft. The interior is occupied for various purposes. Upstairs there is a banquetting chamber, 45ft. long and 24ft. wide, with a balcony and orchestra. A Council chamber, a suite of private rooms, and extensive cellarage are also included in the accommodation. Whilst the city has had the uninterrupted use of the building, it has, however, always been possible for the owners to bring the tenancy to an abrupt termination, and it is hardly a dignified position for any Corporation—least of all for that of a city of great antiquity—to find itself liable to be turned adrift at any moment and left without a civic habitation. In these circumstances Lord Ripon, the present owner of the property, decided at the close of his Mayoralty last year to make a free gift of the building to the citizens of Ripon. On Saturday week the gift was completed by the formal handing over of the deeds to the Mayor. The building itself, apart from the site, is roughly valued at £3000.

THE Committee of the Leicester School of Art, in its final report to the Corporation, states that for the year ending July, 1897, the successes were one gold medal, three silver medals, eleven bronze medals, and fourteen Queen's prizes. A scholarship, value £300, tenable at the Royal College of Art for four years, was gained by Arthur H. Baxter. In the personal examinations three lists have already arrived, which contain seventy-one first classes, sixteen second classes, two excellent, and two failures. The remaining results of the year's work, and amount of Government grant, are not to hand. In the national competition the school takes the third position in the kingdom, Birmingham being first, and South Kensington second. Notwithstanding that many of the large towns have during recent years provided themselves with new school buildings and appliances far in advance of those of Leicester, the school has so thoroughly maintained its high standard of work that not more than two or three towns in the country can show such a record of successes. The students have been awarded during the last nine years five gold medals, twenty-seven silver medals, seventy-five bronze medals, 111 Queen's prizes, and three scholarships to the Royal College of Art, of the total value of £900, have been gained by Leicester students, while the reports which

appear in the appendix, from the Science and Art Department, the Leicester School Board, and the Leicester County Council, bears independent testimony to the usefulness of the school. Drawing has been described as the mainspring of the technical education of the handicraftsman, and the influence of Art culture is being more and more exhibited in the production of every article of domestic manufacture and use. In this respect it has been shown that the superior art instruction of our Continental rivals has adversely affected our manufacturing industries. For it is felt more and more that it is the design which sells the article, whether it be of utility or luxury, and as there is an ever-increasing appreciation of tasteful commodities among the buyers, the preference will naturally be given to those manufacturers and craftsmen who can best combine beauty with utility in the productions which they offer. A great number of the students who have passed through this School have raised themselves into superior positions in all the important branches of industry in which skill, taste, and exact knowledge are necessary. Many have distinguished themselves as designers, lithographic artists, Architects, and leaders of industry, bringing trade and wealth to the whole community. But the results would undoubtedly have been much greater had better facilities been offered for the development of the artistic faculties of the people, which in Leicester, at least, have not been found wanting.

THE ninth annual meeting of the Society of Art Masters was held in the Lecture Theatre of the South Kensington Museum. The Chairman, Mr. S. J. Cartledge, in the course of his address, said that the events of the past twelve months had brought home to him the importance of the necessity of the existence of the Society. While rejoicing in its steady growth, he felt that its influence was not so powerful as it ought to be. It had done its best to bring its views to bear on the Education Department, but had not succeeded in making so strong an impression as other societies. The fact was that the Government was greatly influenced by public opinion, and unfortunately public opinion did not adequately understand the advantages of artistic training. The annual report stated that special attention had been paid to the scheme formulated by the Department of Science and Art for substituting attendance grants for grants on examination results. It had been represented that the regulations, although modified, would still be seriously detrimental to Schools of Art, and would retard the progress of Art education. The Council regretted that although a considerable time had elapsed since the Department signified its concurrence in the suggestion that some distinctive diploma or title should be accorded to Art Masters, this idea had not yet been carried into effect. As far as they could learn, it was proposed to confine the concession to those who had been trained in the Royal College of Art, thus shutting out many Art Masters of established reputation.

THE temporary bridge which the County Council is setting up midway between Lambeth and Vauxhall is now practically at a standstill. It has been carried out from both banks well towards the middle of the stream, where there is to be one single span of 160ft. in length. This is a modification of the original intention, and has necessitated some delay. The Thames Ironworks are, however, engaged in preparing the enormous girders for this central portion, and it is hoped that in three months or so they may be ready. Meanwhile plans are being prepared for the new Vauxhall Bridge, and two designs were exhibited in the County Council Chamber last week. It is sincerely to be hoped that the Council will tolerate nothing short of two really handsome bridges.

THE members of the Somersetshire Archaeological and Natural History Society are again holding their annual gathering at Bridgwater. Mr. Stanley, M.P., in his presidential address,

said there were several quarries near Quantock Lodge which were of an interesting character. He had the authority of so well-known a geologist as Sir Roderick Murchison in stating that the quarry of green stone of which Quantock Lodge was built was of very great interest. Most people who saw the house considered that it was built of green sandstone, but it was not so, for the stone used was a highly igneous rock which took a polish, and the party visiting Quantock Lodge on the next day would see a table of the polished stone. The late Rev. E. M. Lance had had some columns of the stone polished, with which he decorated the beautiful Church which was still being adorned and beautified. There was another large quarry near the Lodge, in which the stone alternated very largely, and it contained building stone, limestone which when burnt produced lime as well as polished marble. From this quarry a large chimney piece for Dunster Castle was carved for Mr. Luttrell. Another object of interest was a cave at Holwell, which had never been thoroughly explored. In addition there were a number of marble quarries to which a certain interest attached.

THE Royal Academy has now closed its doors, after a season which has been the reverse of prosperous. The sales have not been bad, in fact, more pictures were disposed of this year than last; but then, sales bring no profit to the Academy. It is from the shillings taken at the doors that the Academy's income is derived, and it is an open secret that the shillings of 1897 have been disastrously few. For this the fine, hot summer has been largely responsible, as the receipts at Burlington House are always greater in wet seasons than in dry. The Jubilee, again, proved anything but a blessing, and the generally unfavourable verdict passed upon the Exhibition doubtless kept many visitors away from the galleries.

SEVERAL important changes in the arrangement of the National Gallery have followed the removal to Millbank of works by English painters. The Spanish pictures have been transferred from their old quarters into the more spacious and better lighted gallery adjoining, which was formerly filled with examples of the French School. The former Spanish room is now devoted entirely to the paintings by German artists, which have been separated from those of the Flemish School. The position of honour in the German room has been assigned to the famous Holbein, "The Ambassador."

AN additional commentary on the skying of Mr. Brangwyn's "Venice" this year at the Academy is afforded by the news that the Bavarian Government has bought an important work by him for the Pinakothek at Munich. These constant expressions of the estimation in which the Artist is held abroad make more remarkable the treatment to which he is subjected in London exhibitions. Apparently he is condemned in this country to suffer the penalty which we reserve for all Artists of definite originality.

THE Exhibition of oil paintings by Professor Giovanni Lombardo, which is at present open at 21, Baker Street, is more interesting on account of the mastery shown by the Artist over intricacies of perspective than because he has any extraordinary manipulative power. He paints soundly, and draws with unusual accuracy, so that the Exhibition has a value of its own as a display of straightforward craftsmanship. The work which he has brought together includes both landscape and architectural subjects, and is not without variety. One of the most striking of the works on view is an interior of the Chapel Royal, Palermo, an impressive study of strong colour and redundant detail. All the subjects represented have been found in the island of Sicily.

MR. JOHN LEIGHTON writes: "In a recent issue of the Times a correspondent, 'J. R. T.', has proposed as a suitable memorial of the longest reign and the marine review that the

two domes of the Naval Hospital at Greenwich should be gilt in emulation of the glorious Cupola of Mansard at the Hotel des Invalides in Paris, a chapel that has been utilised as the place of sepulchre, in which the ashes of the Emperor Napoleon I. now rest. The work of Wren at Greenwich is certainly beautiful, but its office has been diverted from that of an asylum to a museum; and, moreover, it is not metropolitan. Now, why not decorate the dome of St. Paul's Cathedral, and make it as resplendent as the Kremlin at Moscow, for was it not the centre of the Diamond Jubilee attractions; and, moreover, does it not contain all that is mortal of Nelson, the martyr that made us master of the Mediterranean, and of Wellington, who at Waterloo brought peace to Europe and prosperity to England? Possibly £1000 might be well spent in obtaining a grand effect, but let it be done with British sovereigns, and let the gold be beaten by British hands, and neither more nor less be subscribed for by one person, who may say, Behold my golden offering, resplendent in the glory of the sun, to be the delight of millions! My offering is ready, and so is that of others I know. Here is a chance for the Lord Mayor to call a committee and head a list with a sovereign gold piece; and the thing is done."

THE International Exhibition at Stockholm is especially interesting this year. For the Art Department one cannot wander far from the Rörstrand stall of ceramic works. The decorative articles in Rörstrand faience are modelled and painted by an Artist who has introduced an entirely new style. The tone obtained by his method is exquisite, and the hand painting beautiful in both form and colour. Two lovely vases in palest green are decorated, one with thistles and the other with horse-chestnut leaves and fruit. Some bowls, urns, and vases in metal colour, produced by copper-oxide, are magnificent, but the method is a secret. The Danish porcelain perhaps still remains the finest. From their Royal Porcelain Works are shown two dinner services, and the "Heron Service," which was at the Copenhagen Exhibition in 1888, all painted by hand before being glazed. There is a large decorative plate in blue with white peacocks, and several with landscapes in blue tones. Also a large flower-pot in pale blue, with lions in pale grey tones, apparently walking round, is very attractive, and a flask in white, covered with a spider's web, is quite beautiful. The metal work is charming. The Swedish Company of Goldsmiths have some very fine exhibits in silver, but a good many of the designs are Danish. Some beautiful bracelets in gold have been copied from antique specimens dug up in Denmark. The most magnificent piece of Art is the large "mjod-horn" (mead horn) in silver, decked with runes, a Viking decorating the lid. From these horns the old Vikings always drank their sweet beer, which was called "mjod."

At one time the Highgate magistrates dispensed justice in licensed premises, the historic old Gate House. The Court was then transferred to the Northfield Hall, North Road, but this building is really nothing but a schoolroom; so a freehold site was purchased by the Middlesex County Council in the Archway Road, Highgate, for the purpose of securing a proper tribunal. The site includes an adjoining piece of land, upon which a police station is to be provided. The new building will be constructed so as to allow of two separate sittings of magistrates at the same time, the total cost being about £7500. The foundation stone was laid a few days ago.

THE loan collection at the Guildhall having closed, the galleries are again being hung with the permanent collection, which includes the gift of Sir John Gilbert and a very interesting group of his sketches in water-colour. These works will be opened to the public in the course of a few days. For next year, Mr. A. G. Temple, F.S.A., the indefatigable director of the gallery, is bringing together a collection of French Art of the eighteenth and nineteenth century, which should make one of the most instructive exhibitions the City Gallery has

yet held. By way of marking the importance of the just closed Jubilee Exhibition, Mr. Temple has written an account of "The Art of Painting in the Queen's Reign," in which he has something to say about the Artists as well as their Art.

A SECOND report from the Select Committee on Museums of the Science and Art Department has just been published as a Parliamentary paper. The members feel bound to confirm and emphasise the recommendation of their first report as to the necessity of immediate action to secure the buildings against fire, and to express their sense of the importance of completing the building on the east side of Exhibition Road, with a view to the safe deposit and satisfactory exhibition of the Art collections (including the Indian section now on the west side of the road in a hired building) at South Kensington.

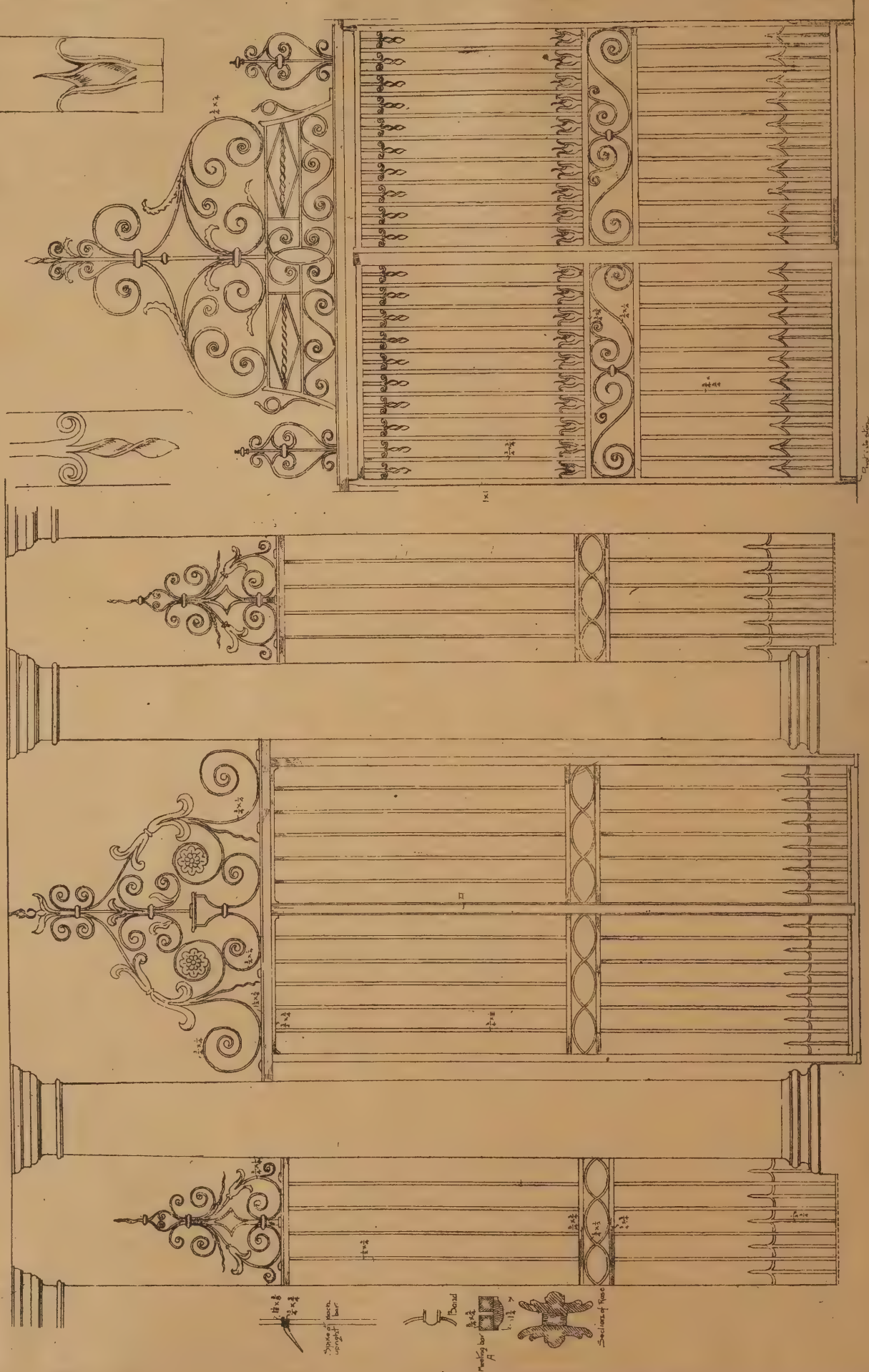
IN its Parliamentary efforts this Session, the District Railway has had a rather remarkable success, and is about to push out in no less than three new extensions of its line. The most important, perhaps, is that which, under different circumstances, would have been a lateral extension of its road between Earl's Court and the Mansion House. As there was not scope for lateral extension it sought, and has obtained, Parliamentary powers to construct a second line by burrowing down underneath the first, the new system of tunnelling having rendered it easy and safe to do so. This new line is to extend from Earl's Court to the Mansion House, with one intermediate station, which will be either at Victoria or Charing Cross. It will be worked by electricity, the steam locomotives bringing in trains from the outside district giving place to electric engines at Earl's Court. This will keep the atmosphere in the tunnels free from pollution. Another extension for which the Company was fortunate enough to obtain Parliamentary sanction will be from Harrow to Uxbridge. A third project which Parliament has authorised, may prove to be in some respects even more important than either of the others, since it will connect Whitechapel with Bromley and the Tilbury and Southend. When this new connection has been made the transference will involve merely getting out of one train into another at Whitechapel.

MR. ERNEST CROFTS, who is to fill one of the spaces in the Royal Exchange, to the commission of the Mercers' Company, is a north countryman, who was born in Leeds some fifty years ago. After a short training in England Mr. Crofts went to Düsseldorf to study his Art. It is as a painter of military pictures that he has made his greatest success; but none achieved more popularity than his "Defence of Rorke's Drift," which was last exhibited at the Guildhall a few years ago. Of late, Waterloo has been a favourite subject with Mr. Crofts, and that is the theme of his picture now at the Academy.

THE Queen is the largest chimney owner in England, with the single exception of the Government. At Windsor Castle alone there are over 1500 chimneys. There are several hundred chimneys at Buckingham, Hampton Court, Kensington, and St. James's Palaces, while Osborne and Balmoral each provide a very considerable quota. The largest block of all is, however, at Windsor Castle. All these chimneys are numbered both above and below. There is a regular chimney map, with the whereabouts and the numbers of each carefully marked. In the older portions of the Castle the object seems to have been to conceal the chimneys from outward view as much as possible. The chimney-pots are therefore hidden away among the battlements. The battlements of the Round Tower are in many cases pierced by the chimney-pots. In other parts there are great stacks of chimneys, which rise to a considerable height. Some of the tops could be reached with ease by the veriest amateur. Many of the old chimneys are constructed on very complicated principles, with sharp bends and turns and curious obstacles.

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LANCASTER: Wrought Ironwork.



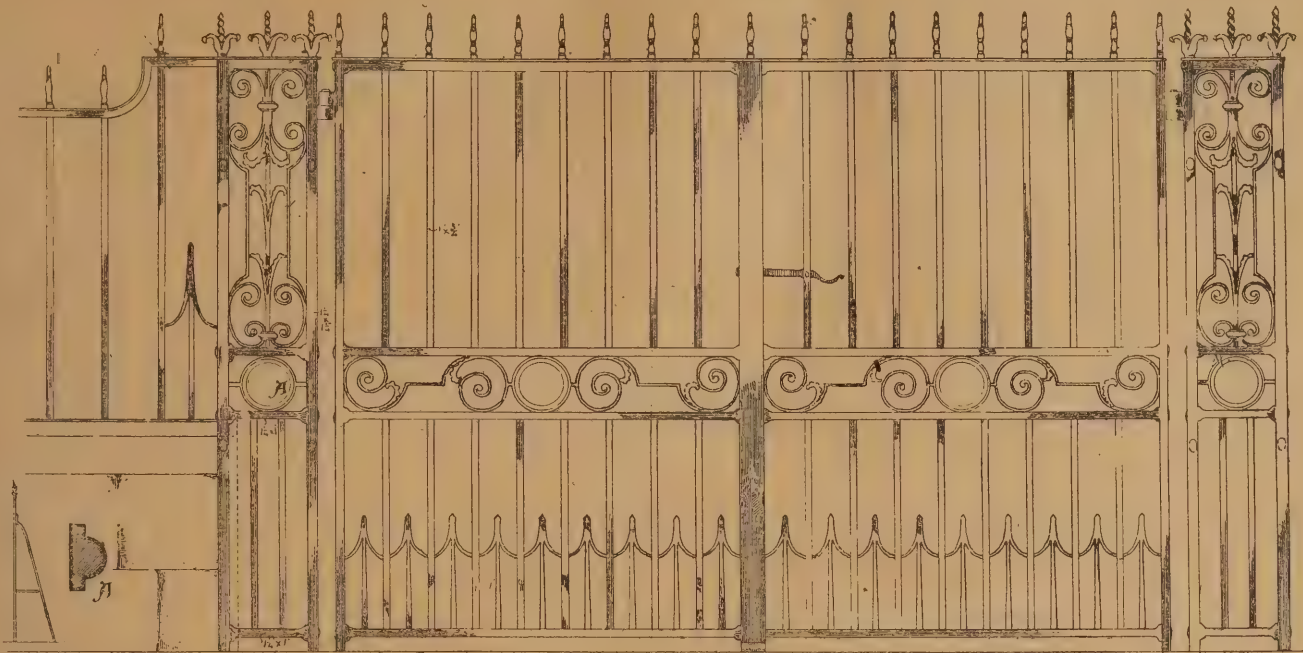
Gate in Market Street.

Gate in St. Leonardgate.

12 Feet. 14 Feet.

11

HORBY LANCASHIRE. Wrot' iron gate near Church.



Sketch of Standards 2 inch each
XXXV. Standards behind

Inches 12 9 6 3 0 1 2 3 4 5 6 7 Feet

Old wrot' ironwork

In the possession of E. G. Paley, Esq.

Fragment of Churchyard gates Lancaster



C

Inches 12 9 6 3 0 1 2 Feet



a. Flattened nut
b. Round section
c. Square section

Sketch of B

Bracket

Inches 12 9 6 3 0 Feet

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Surveying and Sanitary SUPPLEMENT.

AUGUST 11TH, 1897.

HOUSE SANITATION AND DRAINAGE.

By E. CROPPER.

STRICTLY speaking, an article under such a heading ought to treat upon all matters of healthy house-building—the site, the situation, the orientation of the various rooms of the house, its ventilation, and its construction. But it is here proposed to deal only with the plumbing and drainage of the building, and of the principles which should regulate the planning of those parts of the house requiring such works. Effectiveness, simplicity, and economy should be the key-notes of all such works, and we propose first to deal with the principles that should guide the designer in arranging the various lavatories, baths, w.c.'s, and sinks inside the house, and the details of the drainage system outside. Plumbing fixtures arranged freely on every floor are, no doubt, a convenience, but they may become out of order, and in that case also dangerous, especially during hot weather; moreover, they are the most expensive details of house construction—therefore, a useless multiplication of these fixtures should be avoided. For instance, how often do we see in a middle-class house, accommodating, say, twelve persons, two w.c.'s on the ground floor, and one on the first floor, only a few yards distant from each other, and often so planned as to require separate soil pipe and drain, and that *bête-noir* of the Artist, the ventilating pipe that will crown each view. If the w.c. near the front entrance can be planned so that it does not dominate, in several senses, the small entrance hall, as well as the entrance elevation, and if it can be economically placed under that on the first floor, then its convenience has no drawbacks; otherwise it might often be omitted. Again, the pedestal w.c. is a very useful combination of the urinal, slop sink, and w.c., and the constant flushing it receives and consequent cleanliness, is far healthier than several fixtures, some of which may be seldom used, and which servants dislike to clean. In large houses it becomes a necessity to provide separate fixtures, and to duplicate them on each floor, but there are good reasons for exercising more restriction than is often shown in the supply of plumbing fixtures.

Fixtures should always be concentrated as much as possible, consistent with convenience, in compact groups and in vertical lines or tiers, so that the soil waste and ventilating pipes may be few. Small houses ought to be so arranged that the bath and lavatory may stand over the scullery or thereabouts, and, of course, adjoining the kitchen range, to allow the waste to discharge into the gully receiving the sink waste. The bath is then placed conveniently for receiving the hot and cold water supplies. In large houses this is not always practicable, but it is worth an effort to attain. The

cistern room should be placed over the bath room, if possible, so that the boiler of the kitchen range, the hot-water cylinder, and the supply cistern may be practically over each other. By concentrating the fixtures over the least ornate parts of the house, the cost of repairs, in case of burst pipes, is minimised.

Even in the smallest house the bath room should be kept separate from the w.c., each having a well-lighted and ventilated apartment; and a desire for concentration should never lead to placing a bath or lavatory in a bedroom; their waste pipes and traps are never entirely free of smell, especially where they run nearly horizontally; they should be placed in a separate dressing or toilet room adjoining, where, if well-ventilated, a pedestal or valve closet may be added to the other fixtures.

Water closets should not on any account be placed over reception rooms, nor if possible, next to bedrooms; but should be placed on the side of the bath room away from the sleeping rooms; a lighted and ventilated antepassage to the w.c. is useful in affording two doors to deaden the sound of the noisy cistern. To further make the w.c.'s sound-proof, the floor may be pugged. The walls should be of 9in. brickwork, and may be battened, and lathed and plastered; if they are framed partitions they should be filled in with cocoa fibre, and have a layer of thick inodorous felt, or better still, a layer of slag wool nailed on the fir framing and match boarding nailed through.

The difference between a well-arranged hot and cold water service and one badly arranged is, in England, that one stands a severe winter, and the other is frozen up by only a mild one. The position of the rooms having such services may aid either result, as, for instance, if the bath room is well protected from cold winds, and placed over the warm kitchen, it is much safer than over a larder on the north side of the house. The outside wall should face south, or as nearly so as possible. Service pipes also should be arranged to run on the internal walls; on no account should they be buried in plaster or brickwork. Often they might be left exposed on internal walls when the workmanship is good; but, where exposure is inadmissible, they should be fixed with lead tacks screwed to $\frac{3}{4}$ in. boards, and cased in with similar boarding, all fixed together with brass screws and cups for easy taking apart and replacing. On outside walls and in roofs the pipes should always be cased in, and wrapped with gaskin or pipe felting, or the casing stuffed with cocoa-nut fibre. Sawdust should be avoided, as it rots and swells.

Sometimes the supply cistern has to be placed in the roof, there being no separate cistern room accommodation. In this case it should be boxed in, the sides stuffed with fibre, and the lid made to fit tight, with turn-buckles to secure it.

It is well, too, to wrap the traps and waste pipes from baths and lavatories with felt or gaskin, and to see that all the openings round

these and soil pipes as they pass through the wall are made good and cemented round. All water-waste preventors should, if placed on outside walls, have a boarded protection next the wall, and the supply to the pan should have the same. All overflows from cisterns have, according to regulation, to discharge with open ends where the discharge may be seen. This is an excellent regulation, as it also forbids connection to any soil or waste pipe—often a strong temptation when it is difficult to reach the open air. The ends of the overflow pipes should have a hinged copper flap which closes the orifice against freezing draughts blowing up the pipe, but opens for any escape of water. It may be well to mention here that all overflows should be at least a $\frac{1}{4}$ in. larger in diameter than the service supplying the cistern.

As a general rule, soil and waste pipes should be taken outside as direct as possible. If, however, one of these receives several branches from a tier of closets or lavatories, it is more convenient to run it down an angle or chase internally, to shorten the lengths of the branches. The joints should be carefully made, and the junctions made oblique to the soil pipe not at right angles. The ventilating pipe from the top of the soil or waste pipe should be carried outside at once.

Soil pipes serving two closets should be 3in. diameter; for three or more, $3\frac{1}{2}$ in. to 4in. diameter. They are usually of lead equal to 8lb. to the superficial foot; or of heavy cast-iron in 6ft. lengths, painted with Dr. Angus Smith's solution, or treated with the Bower-Barff anti-corroding process to preserve the iron. Where the pipe is exposed to the atmosphere, there is no doubt that lead is the best material. The tacks for securing the lead soil pipes to the wall should be in pairs, each strongly soldered to the pipe, made in length twice and in width the same as the drain of the pipe. They may be cut and shaped in various ways, and should have two $\frac{1}{4}$ in. large-headed nails to each tack. The best joint in lead pipes, adding much to the strength, is the wiped soldered joint.

All soil and waste pipes should, if possible, be so fixed that a current of fresh air may be circulating through them. For this purpose both ends should be open, the foot of the waste pipe under the gully grating, and the soil pipe, with its length of drain untrapped, at the inspection chamber. The head of the pipes should be continued up full bore above the eaves to a height of 3ft. or more, and finished with a pneumatic exhaust ventilator slipped over the end of the pipe, and the joint made in red lead. Instead, galvanised iron or copper wire balloons, or hoods of iron or lead, are fixed on the ventilating pipes, but these do not induce a current up the pipes. Should openings, such as windows or dormers, occur within 8ft. of the ventilating pipe, it should be carried up above the heads of these at least 3ft. Sometimes it is necessary to carry it up the roof to the ridge, but this is the last resort. On no account, however,

should it run up the chimney stack, or the foul air will almost certainly be drawn into the house. The terminations of ventilating pipes deserve very careful consideration—more than is often given to them.

It is important, when a tier of two or more closets or lavatories empty into the same pipe, that precaution be taken to prevent syphonage of the traps to the lower basins when the upper basins are discharged. The down-rush of water drives the air before it, leaving a vacuum behind; the air in the branches on the way down is sucked out, and the atmospheric pressure on the house side of the trap of each branch forces the water out, leaving a clear way for the foul air to pour into the house. To prevent this, a 2in. pipe should be taken from the outgo of the lowest trap, up above the topmost trap, and connected to the ventilating pipe, receiving branches from all the outgoes in its course. This forms an air supply to the branches, and preserves equilibrium in the traps.

Waste pipes from lavatories or scullery sinks should not be connected to soil pipes, but discharge with an open end under the perforated grating of a trapped gully, this in its turn being connected to the drain from the soil pipe, or carried separately to the inspection chamber.

Sometimes one sees soil pipes treated in the same way, discharging with open ends into a Hellyer's trapped interceptor, and, where the drain from it is an old one, or of great length, it is advisable to use this interceptor, which traps off the drain and allows fresh air to enter at the foot of the soil pipe and pass up to the top; but if the drain is of short length, and ventilation can be obtained through the inspection chamber, it is better to avoid traps, which only interfere with the head of the discharged sewage and block up one end of the drain.

The patterns of closets are legion, and improvements are continually being made in them, but they are practically divided into three classes: the valve, the wash-down, and the wash-out closets. Very few of the last-named are now made compared with the others, though they find favour in some quarters. It is generally admitted, however, that the closets of the first two classes are the best. The valve closet is the more costly, but no doubt it is the most perfect, and those made by Underhay and Hellyer are probably as near perfection as any obtainable. These have enclosed seats, which are still preferred by many, from sentimental reasons apparently. The seat may be hinged to lift up, so that the closet may be used as a urinal. Of the wash-out closet there are many patterns, such as Doulton's Simplicitas, Twyford's Deluge, Unitas, and Twycliffe patterns. These have no framing except a hinged-shaped seat, to lift up when necessary for emptying slops, &c. This seat may also have a hinged-shaped lid covering the holed seat. The seats are best in two thicknesses of hard wood, the grain of one crossing the other to prevent splitting. The underside of the holed seat should be fitted with three india-rubber buffers, and rest by these on the iron brackets supporting it without touching the closet pan.

The satisfactory connection of the P or S trap of the closet has only of late years been contrived, but this is now possible with Twyford's "bayonet joint," and Doulton's screwed rings.

The water supply to valve closets should, if allowed by the water company, be by a valve and regulator, worked from the handle of the closet. This method, however, allows a supply so long as the handle is held up, and may use more than two or three gallons—the limits of some water companies—in which case waste-preventor cisterns must be used. There are many of these cisterns claiming to be noiseless and certain in their actions, but the best seem to be Shanks' "Reliable," and Doulton's "Paisley" cisterns.

Service pipes from the main cistern, or from the main supply of the building, where the supply is constant, to water-waste preventors should be ½in. lead, with brass unions and ball valve of same size; and the supply from the cistern to the closet pan 1½in. lead where the

cistern is 7ft. above it, if more than 7ft., 1½in. supply will serve. The joint with the pan is made with an indiarubber cone slipped over the pipe and the arm of the closet rim, and tied to both with strong copper wire. The supply pipe to valve closets should be of the same diameter until the height of cistern above face is 20ft., when 1in. valve and 1in. supply pipe is sufficient.

Some water companies restrict the size of water waste preventors to a two-gallon flush, but if possible the three-gallon cistern should always be supplied, even though the water be paid for by meter.

It is convenient when repairs are needed to plumbing fixtures, or in case of frost, to be able to cut off the water supply to each without stopping the use of the others, and stop-taps should be arranged where they can be easily found or seen on the various services. It is perhaps not advisable to provide too many, but they are often very serviceable.

Urinal fittings need some mention. It is, if anything, more desirable that the space in which these are placed, and the fittings themselves, should be better ventilated than water-closets. The best fittings are those of white glazed enamelled stone ware, with traps, and gutters if any, of the same material. The more lead is substituted by the stoneware the better, as lead traps and wastes eventually become coated, however well flushed they may be. The urinals may be arranged with basins placed singly or in stalls with slate enamelled stoneware backs and divisions, or in stalls without basins, as made by Jennings, Adams, Twyford, and most makers. The flushing may take place as for closets, with a one-gallon cistern to each basin or stall, or a three-gallon cistern to serve four or five; or the flushing may be done from a similar cistern, flushing automatically every quarter-hour or more; this, however, is usual only in public conveniences. It is well, too, to have a ½in. bib tap placed in the same room, having a screwed union connection for Royle's patent nozzle and hose to wash the fixture and floor each day, the floor being laid to fall to the urinal gutter to throw off the water.

The materials used in the walls and floors of bath rooms, w.c.'s, and urinals should have the primary qualities of being impervious to water or odours, light in colour, and easily cleansed. The walls may be of glazed enamelled bricks of every shade of colour, salt glazed, double dipped bricks having a dark brown tint, useful for skirtings, and having a surface which is really part of the body of the brick, so that it cannot chip off. An excellent and beautiful material called Opaline has been invented, which can be placed in the form of sheets ½in. thick on ordinary walls, or screwed to wood battens or wood partitions. It is well suited for dados of w.c.'s or bath rooms, with plaster walls above finished with four coats of enamel paint; and this treatment has the advantage of being applicable to ordinary brickwork after the pipes and fixtures have been fixed. Floors of all such rooms should be waterproof, or nearly so. Glazed tiles or quarry tiles on breeze concrete, with strips of cork matting where necessary, make the best floors; sometimes lead is laid over wood floors, especially under the closets, to form a tray, but wood floors should be avoided if possible. It is always possible in new buildings to lay the joists an inch lower than usual for floor-boards; fill in with fine breeze concrete as if for pugging, and float smooth for tiling, which then finishes level with the boarded floor adjoining.

(To be continued.)

MR. JAMES LEWIS THOMAS, F.S.A., late chief surveyor of the War Office, has been elected an honorary associate of the Royal Institute of British Architects.

THE Croydon County Council is about to apply to the Local Government Board for sanction to borrow the sum of £72,000 for street improvements and new waterworks.

THE building erected by the Scarborough Model Lodging-House Company (Limited), in William Street, "to provide healthy and comfortable lodgings for the industrial classes," has just been completed at a cost of £2500.

Surveying and Sanitary Notes.

DR. J. F. J. SYKES, Medical Officer of Health for St. Pancras, in a report which he has just presented to the Vestry, states that of the 25,000 dwelling-houses in St. Pancras alone, he estimates that probably not one-tenth are supplied with baths. While he recognises that it is hopeless to expect the provision, at the public expense, of single baths for the remaining 22,500 houses, he considers the Public Health Committee might, in the absence of legislation, usefully urge upon house-owners the ultimate advantage they would be likely to gain by supplying their tenants with proper bathing and washing accommodation. In all new neighbourhoods even the smallest and cheapest houses have, he says, baths and coppers.

THE extension to London of the railway system which until recently was known as the Manchester, Sheffield, and Lincolnshire Railway, but will henceforth bear the name of the Great Central Railway, is making satisfactory progress towards completion. The London section of the line, which has changed the aspect of St. John's Wood and swept away insanitary areas in the region of Lisson Grove, Marylebone, is being pushed on rapidly. Both the passenger and goods terminal stations are in the parish of Marylebone, the former of which, faced in Marylebone Road by the Grand Central Hotel, will have two long arrival and departure platforms. Down the centre of each there is to be a cab-rank. Instead of one large glass and iron span covering the terminus, the roof will be built in short arches. The Grand Central Hotel, now in course of completion, will have a frontage of 200ft. and a depth of 315ft. The hotel is to have a courtyard after the Continental fashion. The terminal buildings also include a goods warehouse and coal depot. Having regard to the district now served by the railway and its possession of the port of Grimsby, a huge traffic in coal and fish is confidently anticipated. The goods warehouse will be five stories high, 380ft. long, and 270ft. wide. The coal depot will occupy a site formerly covered with slum property; and, in accordance with statutory obligation, the Company have erected blocks of industrial dwellings, presumably for the accommodation of the population displaced, an illustration of which we gave a short time since. The Architect of these dwellings was Mr. Alex. Stenning.

FIFTY years ago the Water Committee of the Liverpool Corporation purchased the undertakings of the private companies who had hitherto furnished the water supply for the city, so that the present year brings the jubilee of the corporate committee. On Wednesday the Water Committee engaged in its annual inspection of the pumping-stations at Aubrey Street, Green Lane, Prescott, and Dudlow Lane (Wavertree). The Aubrey Street pumping station was the first place visited. It was constructed in the year 1857 for the purpose of supplying Rivington water to districts that could not be supplied by gravitation from the reservoir at Prescott, and to give a high pressure supply for the extinction of fires. There is a tank which holds 250,000 gallons, and is supported on strong masonry columns and arches, forming a familiar and striking architectural feature in Everton. On the suggestion of the water engineer, and in order to cope with the distribution of Vyrnwy water, a new pumping engine was ordered from Hathorn, Davey, and Co., of Leeds. It is a three cylinder triple expansion vertical rotating engine, with cylinders of the following dimensions: 15in. high pressure, 23in. intermediate and low pressure, 38in. diameter, and 3ft. stroke. It can be driven at various rates of speed to suit the varying demands for water, and there is also an arrangement by which it can be controlled by the rise and fall of the water in the high-level tank. The expenditure has been £5640.

THE Eastbourne Waterworks Company has spared no effort in its endeavour to fulfil its pledge before the Parliamentary Committee, and to place Eastbourne in possession of the auxiliary supply of water from the works at Friston at the earliest possible moment. The laying of the new pumping main from Friston to the high service reservoir at Meads has been practically completed, and the additional service has been formally inaugurated by the Duke of Devonshire, accompanied by the Mayor and Corporation. It is barely nine weeks since

the contract for laying the main was placed with Messrs. Aird and Sons, and the expeditious manner in which it has been prosecuted is highly creditable to all concerned. Necessarily some of the work is of a temporary character, the new water supply, however, being a permanent addition to that already derived from Holywell, Wannock, and Bedford Well. The new main, which extends over a length of nearly 3½ miles, and crosses Mr. Carey's land at Eastdean, and Black Robin Farm, traverses very uneven ground, and considerable tunnel-

ling will be required before the main is completed in a permanent form. This, however, may be accomplished more leisurely. This work will be carried out by Mr. William Wallis, and it is expected may be finished by about Christmas. The Company is also engaged at Charleston Valley, where it is expected that a still greater supply of water will in due course be available, and which will augment the supply from Friston. The quantity at present derivable is estimated at between 700,000 and 800,000 gallons daily.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Aug. 13	Flushing, Falmouth—Re-seating, &c. Wesleyan Chapel	Admiralty Commissioners	H. W. Collins, Architect, Penryn-street, Redruth.
" 13	Scarborough—Dwelling-houses (8)		Director of Works Department, 21, Craven-st., London, W.C.
" 14	Clones, Ireland—Church Repairs		W. Hague, 50, Dawson-street, Dublin.
" 14	Carlisle—House and Cottage		C. Armstrong, 45, Lowther-street, Carlisle.
" 14	Carmkirk, Cornwall—School, &c.	Illogan School Board	S. Hill, Architect, Green-lane, Redruth.
" 14	Deerhurst, Tewkesbury—Flood-gate Door, &c.		S. J. Gillett, Surveyor, Deerhurst.
" 16	Ballyhaise, Ireland—Two Cottages	Great Northern Railway Co., Ireland	Company's Engineer-in-Chief, Amiens-street, Dublin.
" 16	Cockermouth—Tool-house in Park	Urban District Council	Surveyor, Council Offices, Cockermouth.
" 17	Chelmsford—Engine House	Town Council	Borough Surveyor's Office, 14, Museum-street, Chelmsford.
" 18	Hackney—Movable Floor over Bath	Union	T. R. Coles, Clerk's Office, Homerton, N.E.
" 18	Pontypool—Alterations to Workhouse, Hospital, &c.	Guardians	Lansdown and Griggs, Metropolitan Bank-chambers, Newport, Mon.
" 20	Carlow, Ireland—Additions, &c., to Asylum	Commissioners	Board of Control of Lunatic Asylums, Custom House, Dublin.
" 23	Redruth—Two Semi-detached Villas	R. Dunn	H. W. Collins, Architect, Penryn-street, Redruth.
" 24	Everton—Chimney Shaft to Refuse Destructor	Corporation	City Engineer's Office, Municipal-buildings, Liverpool.
" 24	Durham—Chapel Enlargement		W. R. Woodhead, Trimdon Grange.
" 26	Kingston-on-Thames—Extension of Electric Light Buildings	Corporation	Borough Surveyor, Clattern House, Kingston.
" 28	Cardiff—Truant Industrial School	School Board	W. H. D. Caple, 1, St. John's-square, Cardiff.
" 30	Dewsbury—Twenty-eight Houses, &c., Malkroyd-lane	Pioneers' Industrial Society, Limited	Holton and Fox, Westgate, Dewsbury.
No date.	Baldon—Residence		Isitt, Adkin, and Hill, Prudential Buildings, Bradford.
"	Barnet—Additions to Victoria College Hospital		C. P. Ayres, 144, High-street, Watford.
"	Carlisle—Alterations to Inn, St. Nicholas		G. Armstrong, 45, Lowther-street, Carlisle.
"	Chatham—Rebuilding Alexandra Inn	Budden and Biggs Brewery, Limited	Boucher, Architect, High-street, Rochester.
"	Dukinfield—School Extensions, &c.		J. H. Burton, 2, Guide-lane, Hooley Hill.
"	Knarsborough—Detached House, Boroughbridge-road	W. Goodyear	A. Gibson, 8, Cambridge-crescent, Harrogate.
"	Peterborough—House, Shop, &c., Buckle-street	J. W. Tirrell	J. G. Stallebrass, Architect, Peterborough.
"	Newton-in-Cartmel—Joinery, Plumbing Work, &c.	H. Bispham	H. Bispham, Newton-in-Cartmel.
"	Sedgefield, Durham—Concrete River Wall		County Surveyor's Office, Durham.
"	Shotley Bridge—Alterations, &c., to Wheat Sheaf Inn		E. Bowman, County-chambers, 52, Westgate-rd., Newcastle.
"	Swinton, Yorks.—Rebuilding Parish Church		E. J. Hubbard, Moorgate-street, Rotherham.
"	Sevenoaks—Alterations to Schools		T. Porter, 49, London-road, Sevenoaks.
ENGINEERING—			
Aug. 16	Brighton—Condensing Plant	Corporation	F. J. Tillstone, Town Clerk, Brighton.
" 17	Inverness—Laying Water-pipes, &c.	Corporation	J. Fraser, Civil Engineer, Inverness.
" 23	Romford—Reservoir, Pumping Station, &c.	Rural District Council	J. Simmons, 1, Prince's-street, Doncaster.
" 23	Sunbury-on-Thames—Engine House, &c.	Urban District Council	J. Austie, 17, Victoria-street, S.W.
" 24	Walthamstow—Warming School	School Board	W. A. Longmore, 7, Great Alie-street, Whitechapel.
No date.	Dublin—Heating at Training College, Marlborough-st.		Marlborough-street Training College, Dublin.
"	Selby—Sinking Artesian Well	Yorkshire Bacon Curing Co., Limited	E. Townsend, Sec., 1, Abbey-place, Selby.
"	Tiverton—Heating and Ventilation to School	School Board	Silecock and Reay, Octagon-chambers, Bath.
IRON AND STEEL—			
Aug. 17	Chelmsford—Cast-iron Tank	Town Council	Borough Surveyor's Office, 14, Museum-street, Chelmsford.
" 31	Saltscoats, Scotland—Supply of Steel Galvanized Buckets.	Commissioners	J. Miller, Surveyor, Saltscoats.
No date	New Ferry, near Birkenhead—Lamp Pillars	Urban District Council	J. Young, 78, Stanley-terrace, New Ferry.
PAINTING—			
Aug. 14	Tamworth—Painting, &c., at Hospital	Joint Isolation Hospital Board	H. J. Clarkson, 22, Church-street, Tamworth.
ROADS—			
" 14	Romford—Granite, &c., Steam Rolling, &c.	Urban District Council	Clerk, Council Offices, Romford.
" 16	Morley, Yorks.—Sewering, &c. (Two Contracts)	Corporation	M. H. Sykes, Borough Surveyor, Morley.
" 16	Morley—Levelling, Paving, &c.		Borough Surveyor, Morley.
" 18	Birkenhead—Paving, Sewering, &c.	Corporation	C. Brownridge, Town Hall, Birkenhead.
" 18	Burnley—Paving, &c.	Highways and Sewage Committee	G. H. Pickles, Borough Surveyor, Town Hall, Burnley.
" 18	Kingston-on-Thames—Granite and Flints	Corporation	Borough Surveyor, Clattern House, Kingston.
" 19	London, N.—Sewering, Paving, &c.	Finchley Urban District Council	C. Roberts, Clerk, Council Offices, Church End, Finchley.
" 21	Strood—Paving Works, &c.	Rural District Council	Clerk's Office, Strood Union.
" 21	Radnor—Road and Sewer	County Governing Body	H. Teather, Andrew's-buildings, Queen-street, Cardiff.
" 23	Stevenage, Herts.—Broken Granite	Urban District Council	Council's Offices, Stevenage.
" 23	Sunbury-on-Thames—Road Works, &c.	Urban District Council	J. Austie, 17, Victoria-street, S.W.
" 27	Wood Green—Making-up Four Roads	Urban District Council	C. J. Gunyon, Surveyor, Offices, Town Hall, Wood Green.
No date.	Castleford—Paving and Macadamising	Co-operative Society	Offices, 28, Carlton-street, Castleford.
SANITARY—			
Aug. 16	Shipley, Yorks.—Sewers	Urban District Council	W. B. Woodhead and Son, 18, Exchange, Bradford.
" 16	Shipley—Sewerage Works	Urban District Council	M. Paterson, Engineer, Bradford.
" 17	Luton—Drainage Works	Corporation	Borough Engineer's Offices, Town Hall, Luton.
Sept. 1	Wembley—Sewerage Works, &c.	Urban District Council	C. L. Whitehead, jun., Engineer, Council Offices, Wembley.
" 7	London, E.C.—Sewerage Works	Shoreditch Vestry	J. E. Dixon, Surveyor, Town Hall, Old-street, E.C.
No date.	Seacroft, Leeds—Sinking a Well		C. Fowler, 24, Basinghall-street, Leeds.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 24	Barmouth—Plans and Specifications of County School		J. Lloyd, 1, Glanyversedd-terrace, Barmouth.
" 31	Wadhurst, Sussex—Designs for Memorial Hall, Club, &c.	£20, £10	W. Larcomb, Wadhurst, Sussex.
Sept. 1	Ludlow—Electric Lighting Scheme	£20	Corporation.
" 16	Skipton—Designs for Cottage Hospital	£15, £5	Corporation.
" 22	London, S.W.—Designs for Public Baths	£100, £50, £25	Battersea Vestry, Lavender-hill.
" 25	Blaenau Ffestiniog, Merioneth—Plans, &c., for County Police Buildings.	£15 15s.	Standing Joint Committee.
Oct. 1	Morecambe—Plans, Estimates, &c., for Sewage Scheme	£100	Urban District Council.
" 8	Leeds—Designs for Meat Market and Abattoir	£100, £50, £25	Corporation.

THE NEW GOVERNMENT OFFICES.

REPORT OF THE COMMITTEE.

IN March last, in view of the approaching reappointment of the Select Committee which were directed to consider the manner in which the sites available for the erection of the new buildings required for Government offices might best be appropriated for the purpose, we published an illustrated article based upon the interim report made by the Committee in 1896, and the evidence then taken, and explanatory of some of the material points that remained over for consideration this year. The Committee were duly re-appointed on March 25th, among its members being Mr. Smith-Barry, Mr. J. Burns (the Chairman of the Executive), Sir C. Dilke, Mr. Disraeli, Mr. Akers-Douglas (First Commissioner of Works), Sir S. Northcote, and Mr. Legh; and it held several sittings to take further evidence upon the plans laid before the Committee last year. Of these there were three, the point of differentiation as between them being as regards the exact situation of the frontage eastwards of the Government buildings proposed to be erected on the Great George Street or Parliament Street site. We now reproduce, as an aid to the reader, the key plan we published in March, showing the lines of frontage proposed in the three plans in question.

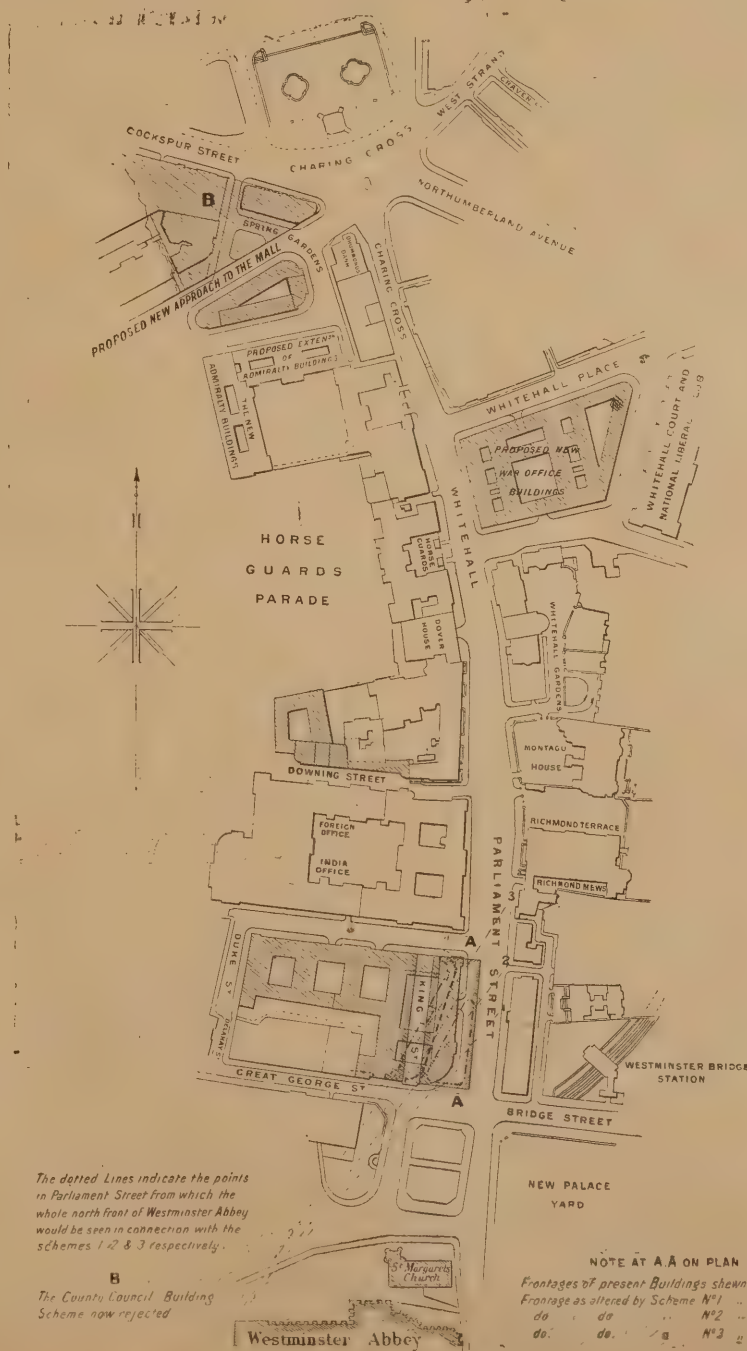
The Committee now state that, having regard to certain criticisms made from an architectural point of view upon those plans, they thought it well to examine representatives of the Council of the Royal Institute of British Architects, and other qualified members of the Profession; and the witnesses so examined include Mr. Macvicar Anderson, Mr. Waterhouse, R.A., Professor George Aitchison, A.R.A., the Right Hon. G. Shaw Lefevre, Mr. J. Oldred Scott, F.S.A., Mr. H. Heathcote Statham, and Mr. R. W. Edis, F.S.A., and Sir John Taylor, R.C.B., principal surveyor to the Office of Works. Various alternative plans were submitted by members of the Profession, "but," the Committee go on to say, "whilst we have availed ourselves of some of their suggestions, we have felt unable, owing partly to the enormous cost involved, and partly to other considerations, to recommend their schemes generally for acceptance. Upon a review of the whole evidence we have arrived at the following conclusions: We are of opinion that the new public offices on the 'Parliament Street' or 'Great George Street' site should be erected mainly on the lines of plan No. 1 in the appendix to the report of last year, with a frontage in a line with the frontage of the Home Office, and parallel to the east side of Parliament Street; but we recommend that the south-eastern corner of the new building should be square and not rounded. The land between this new frontage, and the present west side of Parliament Street, would, if this plan were adopted, become part of the public street; and in our opinion there is no need to make special provision for separating the traffic at this point." There is an expression of opinion by the Committee which will, no doubt, have due weight; it is that "in view of the great Metropolitan improvement to be carried out at Parliament Street, at the cost of the Government, the London County Council should be requested to consider whether they should not put into operation the powers possessed by them under the Public Offices (Westminster) Site Act of 1896, and contribute a share of the total value of the land, which, under this scheme, would become part of the public street." Following the suggestion made to them by Sir John Taylor last year, the Committee recommend the appropriation of this site for the Board of Trade, the Education Department, and the extension of the Local Government Board.

As regards the Whitehall or Carrington House site, having considered the alternative schemes for the War Office which have been placed before them this year, the Committee adhere to the recommendation made in their interim report, being satisfied that a building satisfactory in appearance and accommodation can be erected on that site within its present

boundary lines; and they are of opinion that the details as to the arrangements of buildings, courts, &c., should be entrusted to the discretion of the Office of Works in conjunction with the Architect selected. They think that a subway should ultimately be formed under the street between the War Office and the Admiralty. The Bill for acquiring the contingent interests in this site has already received Royal assent, and payment of the money required may, in the discretion of the Treasury, be spread over a long term of years. Schemes were submitted to the Committee by the Royal Institute of British Architects and by Colonel Edis, for a widening of Charing Cross and of the northern part of Whitehall, but the Committee came to the conclusion that they could not recommend that the taxpayers should be asked to bear the cost of this Metropolitan improvement, which, if undertaken, comes more properly within the duty of the local authorities. They, however, strongly advise that the Mall should be opened into Charing Cross on the north side of Messrs. Drummond's bank (see plan). They did not contemplate the passage of any other than light traffic through the Mall, and were satisfied that the skill and experience of the police would supply satisfactory means of overcoming any difficulties of traffic which might to some

extent follow such opening. They were of opinion that no decision should be arrived at as to building on the triangular site in Spring Gardens until the houses standing there have been removed, and the ultimate requirements of the Admiralty considered. Finally, the Committee say:—

"We recommend that Nos. 11 and 12, Downing Street, occupied respectively as a residence for the Chancellor of the Exchequer and as an office for the Patronage Secretary to the Treasury, should be removed, as unworthy of the site they occupy; but we are of opinion that the principal block of No. 10, the historic residence of the First Lord of the Treasury, for reasons of practical necessity and on account of its associations, should be retained, the Downing Street front being masked by erecting a new building with a good architectural façade, and the Park front cased in stone so as to harmonise with the north and west fronts of the old Treasury buildings, and the garden ground being enclosed with a screen or railing of handsome design. We do not recommend any further building on this site. We are of opinion that whatever other office accommodation is required which cannot be conveniently found in existing Government buildings should be provided for by an extension of the Great George Street site in the



direction of Delahay Street and St. James's Park, in which case some readjustment of the arrangement at present shown in the plan of the Office of Works might have to be made."

On the paragraph of the report proposing that the new public offices on the Parliament Street site should be erected mainly on the lines of plan No. 1, on a frontage in a line with the frontage of the Home Office, Mr. Herbert Gladstone proposed, by way of amendment, that in order to facilitate the traffic across Westminster Bridge and to Victoria respectively, the new frontage should be set back so far as to allow a division of the road space into two roadways, which could be marked independently of each other, but on a division being taken, this was negated by five to one, the right hon. member being himself the minority.

THE MOSAICS AT ST. PAUL'S.

AT various times during its progress we have described the great scheme of decoration which Sir William Richmond has designed in mosaic for the choir and sanctuary of St. Paul's Cathedral. That is now completed after five years of strenuous work, and there is no question about the richness and beauty of the result. The Artist is now proceeding to the body of the Church, for which he has in his mind's eye a further consecutive scheme, which will be carried out during the next few years, provided the Dean and Chapter obtain funds sufficient for the purpose. He is now at work on the quarter-domes under the big dome. Sir William Richmond starts from these quarter-domes with the idea of working upwards. Having

THE KEY OF COLOUR

for these parts, he will be able to find the key necessary for the great band round the Whispering Gallery, which will be his next task. Each quarter-dome measures 640 cubic feet, and all four will be filled with subjects illustrating the doctrine of the Atonement. The series consists of the Crucifixion, the Entombment, the Resurrection, and finally the mission to the Apostles to preach the Gospel to all the world. The Crucifixion is by no means treated in the conventional way. The Saviour is not infrequently represented in old manuscripts as crucified upon the Tree of Life. Sir William Richmond has adopted that idea for his design. The Tree of Life spreads over the whole space, and in the centre, where the branches part, is

THE FIGURE OF CHRIST

crucified. Right and left is a flowery meadow with corn-sheaves in the background, while from the base of the tree issues a stream which expands into a broad river in the foreground. The stream, of course, symbolises the Gospel. Beside the Cross are Mary the Virgin with St. John and the other two Marys, while at the extreme left and right on either side are the kneeling figures of Adam and Eve, as symbols of humanity. Adam seems to be preaching to the people below under the dome, and pointing to the sacrifice that has been accomplished, while the Virgin Mary is stretching out her hand to Eve and bidding her rise, since mankind is redeemed. The next design represents the Entombment. The scene is a garden of roses with the Cross in the background, while the body of the Saviour lies in the arms of an angel, who sits beside the open tomb. Round about are the Apostles in attitudes of veneration. The Artist has sought to banish sorrow, and to convey rather

THE BEAUTY AND SUBLIMITY

of the Christian idea. In this design, also, the River of Life will be seen in the foreground, and the garden will be gay with spring flowers, the figures being brought into relief against a thick wood of blossoming rose trees. From this we turn to the Resurrection, which will be in the south-east quarter-dome. This, again, is in a garden of roses, and in the distance are seen the walls of Jerusalem and the Garden of Olives. The tomb is on the

model of an ancient Etruscan tomb. A great door opens into an inner chamber, and on either side are two angels, who stand in shadow. Underneath is an enormous wing, which is supposed to represent the overshadowing wing of the Almighty. Day is breaking over the hills with a silver light, which spreads over a large part of the design. Golden rays shoot from the central figure of the Christ, who is represented as coming out of the tomb dressed in a robe of white, which

GLOWS WITH OPALESCENT COLOURS.

Roman soldiers lie sleeping beside a hedge of roses in bronze and silver armour. The angels who are opening the doors are in gold and silver with red wings. The fourth and last of these designs represents the mission to the Apostles. The whole of the background will be filled up with vine trees loaded with grapes, in allusion to the True Vine. The figure of the Christ is in the centre, and on either side of Him are the four Doctors of the Church, together with St. Peter, St. Paul, and Pope Gregory, who sent the first Christian mission to England. The latter is represented with the two boys whom he is alleged to have seen in Rome when he made the famous remark, "Non Angli sed Angeli." This completes the series for the four quarter-domes. From the quarter-domes Sir William Richmond will proceed to the Whispering Gallery, above which will be a great band or frieze running round the entire circuit of the big dome. For this Sir William Richmond has

A VERY INTERESTING SCHEME.

He hopes to make the frieze an allegorical representation of all the great religions of the world. Working from the idea that mankind has from the beginning of the world had yearnings after a knowledge of the Supreme Being, and that every religion which has been embraced by mankind has in it something of God, he would show the great religions of the world working up to the central conception of the Divine scheme as embodied in Christianity. In such a procession Egyptians, Greeks, Romans—Socrates, Plato, Aristotle, Seneca—perhaps even Brahmins, Buddhists, Mohammedans, might find place with the doctors, fathers, and martyrs of the Christian Church. If the big central dome is ever done, it would make the culminating point of the whole scheme. For this Sir William Richmond has visions of a great central design representing Heaven, the seat of God. That, however, is anticipating. Both time and money are still needed to finish what is already in hand. A sum of £16,000 is needed to finish the choir, the quarter-domes, and the frieze round the whispering gallery. If this is not forthcoming in a few months Sir William Richmond will

HAVE TO ABANDON THE WORK.

The great dome would take seven years to finish, and would cost a further sum of about £40,000. Sir William Richmond is quite prepared to devote the rest of his life to the work if the money is forthcoming, but the public must in that case respond to the appeal made by the Dean and Chapter. "In conferring a K.C.B. on the Artist the Government has," says the Westminster Gazette, "recognised in a most conspicuous manner the high merit and importance of this work." Governments, however, do not readily find money for Art, and the Cathedral is not their province. It still remains, therefore, for the private benefactor to provide the funds for this great national work.

THE BISHOP OF LONDON on Thursday consecrated a new Church, dedicated to St. Peter, which has been erected at Lower Edmonton. The building will seat 520 people, and has cost £3800. A chancel is to be added in the future.

It has been decided by the Corporation to redecorate Blackfriars Bridge. Several large sheds for the accommodation of the workmen are being erected on the projection of the Embankment on the west side of the bridge. The contractors are Messrs. Harrison and Spooner.

Professional Items.

ABERDEEN.—At a meeting of the Sewerage Committee of the Aberdeen Town Council last week tenders were opened for the construction of the large outfall sewer from Palmerston Road to beyond Victoria Bridge. It was found that the lowest offer was that of Mr. George Pirie, which amounted to £8072, being more than £1000 below the next estimate. Mr. Pirie's offer was accepted. The offer of Mr. John Bain was accepted for the construction of new sewers in King Street and Footdee.

BRISTOL.—Baldwin Street is rapidly taking its place as one of the chief business thoroughfares in the City of Bristol, as is shown by the keen competition for sites in it. Only one available space will remain after the completion of the block of buildings now being erected next to the Midland Railway Company's offices. Amongst the numerous buildings that have lately been added to the street not the least attractive will be the County Auction Mart and offices. The premises have a frontage of about 32ft., are in the Flemish style of Architecture, and built of moulded brickwork with freestone dressings, the arches being of rubber brick. The plans were prepared by Messrs. Gingell and Bond, of Alliance Chambers, Corn Street, and the buildings are being erected by Messrs. Ford and Canning, of King Street Hall, the owners of the property.

BURTON-ON-TRENT.—The new free library has been opened to the public. The building is situated in Union Street, and is that which was formerly occupied by the Burton Institute authorities. Since it was taken over by the Corporation extensive alterations have been made, and the latest improvements introduced. The fittings are for the most part pitch pine, the partitioning being ornamented with fancy glass. The electric light has been installed and the various rooms have been smartly painted and decorated, while the heating apparatus has been greatly improved.

BUTE DOCK.—The Bute Dock Offices were opened yesterday week. The massive pile is situated midway between the East and West Dock basins, with a frontage due south to the Cardiff Entrance Channel, which has long been a familiar landmark. The front of the building is surmounted by a tower of very fine and shapely proportions. A handsome clock has been placed in this tower by Messrs. Potts and Co., of Leeds, and the record of fleeting time is sounded on a particularly deep-toned bell. The main building runs away from the tower to the north, and the general appearance, save for the relief afforded by the architectural features, rather reminds one of a Church. Built of Ruabon red brick and terra cotta tiles, the exterior of the building presents a striking appearance, and reflects credit on Mr. Frame (Architect to the Marquis) and Mr. E. M. Corbett (Architect and surveyor to the Bute Estate Office). The interior arrangements of the new office have made with the leading idea of comfort and convenience. The offices of the departments most in request by the general public are on the ground floor—viz., those of the dockmaster, joint collectors, coal, shipping, warehousing, timber, wharfinger, ballast, &c. The main entrance hall, which is very wide, and runs the entire length of the building, is laid with mosaic pavement. The first floor is principally taken up with the offices set apart for Sir W. T. Lewis, Bart., and Mr. James Hurman (general superintendent), the accountants, engineers, &c. The second floor is largely taken up with the caretakers. Including heads of departments the staff accommodated in the new buildings totals nearly 100. The cost of the new offices, which have taken nearly three years to erect, runs to close upon £30,000. The contractors were Messrs. W. Thomas and Co.

CARDIFF.—At a meeting of the Cardiff Museum Committee the proposed new site for the Museum in Cathays Park was discussed. It was resolved that a deputation wait upon

the Corporation at its next Council meeting in respect of a site, and respectfully suggest that the site they would prefer is immediately north of the site of the proposed new municipal buildings, with a frontage to the avenue.

At a meeting of the Public Works Committee of the Cardiff Corporation a deputation attended with reference to the proposal to pave a certain part of Bute Road with granite sets. The deputation presented memorials objecting to the using of the granite sets, on the ground that considerable vibration and noise would be caused, and it was suggested that wood paving should be laid down instead. Councillor F. J. Veall moved that the borough engineer be asked to prepare an estimate showing the difference in the cost of wood and stone paving. The committee expressed the opinion that it could not go beyond the resolution previously passed.

CHELTEMHAM.—The Town Improvement Committee of the Cheltenham Town Council has had before it eight sets of tenders for the erection of municipal buildings, a kursaal, and winter garden, varying from totals of £46,600 to £52,500. After consideration, the committee decided to recommend the acceptance at the next Council meeting of the tender of Messrs. A. Escourt and Son, of Gloucester, at £46,600, made up as follows:—Municipal buildings, £21,019; kursaal, £21,341; and winter garden, £4,240.

EXETER.—The foundation-stone of the new St. David's Church at Exeter was recently laid by Mrs. Thornton-West, of Streatham Hall, in the presence of the Mayor and Corporation of Exeter. The Church, when completed, will seat about 850, and will have a massive square tower, 100ft. in height. The style of Architecture is of the Transitional period, from the Decorated to the Perpendicular in the fourteenth and fifteenth centuries. Mr. W. D. Caroe, M.A., is the Architect, Mr. W. Dart, of Crediton, the contractor, and Mr. F. Powell the clerk of works.

GLASGOW.—Several applications for the necessary authority to erect new buildings in the city have been granted by the Glasgow Dean of Guild Court. The North British Railway Company was authorised to erect new tenements in Canning Street; Henry M'Arthur, C.A., to erect tenements of dwelling-houses in Springburn Road; Gavin Stewart and Company, to erect tenements of dwelling-houses and shops in Springburn; Donald Ross, builder, to erect tenements of dwelling-houses in Springburn; Thomas Morgan, builder, to erect four tenements of shops and dwelling-houses in Cumbernauld Road; and P. Hepburn and Company, upholsterers, to erect a furniture warehouse in Otago Street.

GOLCAR.—Sir James Kitson, Bart., M.P., Lord Mayor of Leeds, recently opened the new Sunday school premises which have been erected on the site on which stood the old Baptist chapel, built in 1834. The new school contains thirteen classrooms, infants' schoolroom, secretary's room and library, and an assembly hall. The front elevation is in the Renaissance style of Architecture, built of Elland Edge pitch-faced wall stones and Crosland Hill ashlar dressings. The internal joiners' work is of pitch-pine, varnished; the roof is covered with blue Westmoreland slates. Accommodation is provided for 700 persons. The work has been executed by the following contractors, viz.:—Masons, Messrs. A. and T. Haigh, Golcar; joiner, Mr. Wm. Lockwood, Golcar; plumber, Mr. John Marsden, Huddersfield; slaters, Messrs. T. Longbottom and Sons, Huddersfield; ironwork, Messrs. G. W. Crosland and Co., Huddersfield; plastering and painting, Mr. Wilson Armitage, Golcar; wood block flooring and concreting, Mr. John Cooke, Huddersfield; heating apparatus, Mr. F. Milan, Huddersfield; electric bells, Mr. Fred Taylor, Golcar. The whole of the work has been carried out from the designs and under the superintendence of Mr. J. Berry, Architect, 9, Queen Street, Huddersfield.

GRAYLING WELLS.—The chapel at the new West Sussex Asylum buildings, Grayling Wells, was dedicated a day or two ago. The chapel, which is surmounted by a little bell turret, stands northward from the main buildings of the Asylum, and is decidedly pleasing in appearance. It has a design of thirteenth century style, and is constructed externally of land flints, gathered entirely on Grayling Wells Farm, with box ground stone dressings, and a roof of red tiles. Inside, the materials used are Cosham Down stone dressings and plaster, while the base and capital of the circular columns are composed of congrit stone. The Church consists of nave, with side aisles, shallow transepts (to be used for an organ chamber and vestry), chancel, and two epileptic rooms. Seating accommodation is provided for about 360 persons.

LEEDS.—At a meeting of the Leeds School Board, Mr. J. Midgley asked the Board to accept tenders, amounting to £3804 14s., for the erection of a new infants' school at Hunslet Carr. This addition would provide 530 school places at a cost of £7 3s. 6d. per head—a very moderate rate—and would meet the needs of the district for some time to come. Mr. Peaker seconded, and the Board assented. Mr. Midgley further asked the Board to approve of tenders, amounting to £675, for the enlargement of South Accommodation Road School. The tenders were accepted. The Board also decided to accept tenders for the heating of Whingate Board School, at a cost of £185 10s. Mr. Midgley stated that when the heating apparatus had been fixed, the renovation of Whingate School would be complete.

At a special meeting of the Town Council Mr. Knowles moved that the Markets Committee be authorised to build a wholesale dead meat market and abattoir on a portion of the market estate bounded by York Street, Harper Street, and Sykes Place, at an estimated cost of £24,000, and to offer such premiums as they may think reasonable for the preparation of plans and estimates. As the Council was aware, owing to the projected demolition of the Shambles, and the clearance of the adjacent slaughter-yards, it was necessary that such a market should be erected. The value of the proposed site is £6000, or about £2 per yard, and this is included in the estimated cost of the new market and abattoir. The resolution was carried.

The memorial stones of a Wesleyan School-Chapel were recently laid. It is situated in Ladypit Lane, Beeston Hill. Mr. G. F. Danby is the Architect for the new structure, which will be of brick, with stone dressings, plain externally but commodious, affording accommodation for 250 worshippers. There will also be three class-rooms, and by means of a patent folding partition one of these will, when occasion demands, supply fifty additional seats. The total cost is estimated at £1250, and up to Saturday some £600 had been raised. Mr. W. Schofield has the contract for the brick and stone work, and Messrs. J. Tomlinson and Son for the woodwork, a large portion of which will be pitch pine.

LYDNEY.—A new post office has just been built at Lydney, at a cost of £2000. The building was erected by Messrs. Kear and Son, from plans by Mr. Howard Howells, of Lydney. The new premises contain excellent accommodation for post office work in all departments.

MADDERTY.—The Parish Church—one of several with which Gilbert, Earl of Strathern, endowed the Monastery of Inchaffray early in the thirteenth century—is at present undergoing a thorough renovation. An entirely new entrance from the north side, with porch facing the west, takes the place of the two openings now built up. A new heating apparatus is also being introduced; three new window spaces have been made, and these, with the former spaces, are in the Gothic style of Architecture. Although the old gallery has been removed, the arrangement which has been followed in regard to the area sittings provides additional accommodation over all.

The inside walls, which are perceptibly uneven, are to be coated with cement, and coloured and blocked like the stone composing the building. Five ornamental Gothic arches serve well to break up the monotony of the upper portion of the building. A beautiful tracery window of three compartments; a handsome richly-coloured three-light window, representing the crucifixion, St. Mary, and St. John the Evangelist, and having at the right and left lower corners respectively the obverse and reverse of the ancient Inchaffray seal; an elegant rose-shaped window, showing a series of the emblems of the Christian faith, are being added to the Church's adornment. The glass work is being executed by Messrs. Ballantyne and Gardiner, Edinburgh.

NEATH.—The foundation-stone of the commodious new offices to be erected in Orchard Street, Neath, for the Neath Rural District Council, has been laid. The offices will be reared on a site purchased from the trustees of the Dyffn Estate for £500. The plans of the building have been prepared by Mr. D. M. Davies. Messrs. Thomas Watkins and Co. are the contractors.

NEWCASTLE-ON-TYNE.—It is proposed to erect on the Quayside a new and commodious Exchange, which will give such accommodation as can only be adequately obtained in a building expressly designed and built for the purpose for which it is intended. The proposed site is in the centre of the Quayside, facing the river, and the cost, including both the land and the new building, and all incidental expenses, is estimated at £20,000. The entrance to the Exchange is wide and roomy. After passing the lobby, the vestibule, or hall, is reached, from which one door opens to the newsroom and another to the Exchange. This vestibule has purposely been made large, as it may be used for conversation, and on account of its size it will prevent any draught reaching the newsroom or Exchange. It will have excellent light from the top and end. The hall occupies the major portion of this site, having a floor area of 5115 square feet, being much larger than the present Guildhall Exchange. The proposed height is 30ft. to the ceiling; the domes spring from this line 10ft. higher. The heights could be increased if thought desirable (the present Exchange is only 18ft. high). Advantage has been taken of the large open space of the Trinity House courtyard, by placing windows at the north end of the Exchange for additional ventilation. The lighting will be principally from the top, by means of three large domes, 24ft. diameter, each surmounted by automatic ventilators to prevent down draught. In addition to this, there will be large windows at each end of hall near ceiling, to create a through current of fresh air when the hall is not in use. It will be found that expensive mechanical arrangements for ventilation can be dispensed with. Mr. Charles T. Marshall is the Architect.

OLDHAM.—Mr. W. O. E. Meade King, an Inspector of the Local Government Board, recently held an inquiry at the Oldham Town Hall respecting the desire of the Watch Committee and Town Council to borrow £8500 for the purpose of erecting a new police and fire station, along with police and firemen's dwellings, on a plot of land at the junction of Frederick Street and Manchester Road. The Town Clerk said that in the borough there were four police stations—the chief one known as the Central, and the others Townfield, Werneth, and Lee Street. The existing station and premises at Werneth were used for both police and fire purposes, but the whole premises, including the dwellings occupied by the officers, were totally inadequate and unfit for the purpose. Last year the Corporation was able to obtain a plot of land in a good situation. The contents of the plot were 4729 square yards, and the land had been taken at an annual chief rent of £150. This land was acquired about July of last year, and immediately after that sanction was obtained from the Town Council to get in competitive designs for the proposed premises. These plans had been submitted to the Local Government Board, and by it

passed on to the Surveyor of the Prisons Department of the Home Office, who approved of them with a very slight alteration, which had since been made. The proposed scheme provided for the following accommodation:—(1) Police station, including charge room, parade room, six cells, inspector's room, lamp room, bathroom and lavatory accommodation, and house adjoining for the inspector; (2) Fire station, including house for three engines, four-stall stable with provender store overhead, hose-drying tower, washing shed, harness room, paint and work shop, and all the necessary conveniences; (3) 18 dwellings for police and firemen, plus the house for the inspector. The bulk of the cottages would face Frederick Street, and the remainder would face Napier Street West. Each house would have three rooms upstairs and three down, and would have a separate yard and outbuildings. The Architect's estimate had been very carefully prepared, and the sum of £8500 included Architect's commission, furnishing of the police and fire offices, completion of the whole buildings, and £150 for a public clock in the tower.

PORT TALBOT.—A new Church at Port Talbot, dedicated to St. Theodore, was consecrated last Thursday. The edifice is Early English in style, and consists of nave, aisles, two transepts, south chapel, chancel, and vestry. The main walls are built of native stone, with Bath stone dressings.

TORQUAY.—To consider an application by the Torquay Town Council for sanction to borrow £1000 for the purchase of pleasure grounds, Mr. W. A. Ducat, Local Government Board inspector, attended at the Town Hall a day or two ago. The town clerk (Mr. Hext) explained that the application was in respect of the acquisition of the plot of ground at Castle Corner, upon which it had been decided to build the new Town Hall. The purchase price was £4300, and the portion abutting on the St. Marychurch Road, reserved for the Town Hall, was about an acre in area, valued at £3300. The other two acres, valued at £1000, it was intended to convert into a public pleasure ground. Torquay's total debt was £348,893, of which £197,000 was for the water and harbour undertakings, and there was an ample margin on the balance of £202,000 before two years' assessment of the rateable value of £138,265 was reached. No opposition was offered.

TYNEMOUTH.—The new east wing of the Tynemouth Victoria Jubilee Infirmary, North Shields, was formally opened on Friday. Built by Messrs. J. and W. Simpson, of North Shields, from designs by Mr. F. R. N. Haswell, of the same town, the ward measures 32ft. by 24ft., and is arranged to contain six cots, and four beds to be devoted to female patients. There is a large bay window, seated round, and in the south end are a duty-room and sitting-room for nurses, and two isolation wards, with the necessary sanitary arrangements. On the first floor there are two bedrooms for nurses. Owing to the fall of the ground, there is a basement 7ft. high under the whole of the new wing, in which is placed an auxiliary boiler for hot water service, the remainder of the space being available for storage, and for communication with the main boiler room. The new wing gives symmetry to the entire structure, and completes the building for all practical purposes, but should funds and circumstances permit of any further extension, a porter's lodge will next receive the attention of the committee.

WESTON-SUPER-MARE.—The central Board Schools, which have been erected by Mr. Chas. Addicott, upon Messrs. Price and Wooller's plans, are now nearing completion. The building is of local stone, with Bath stone dressings, and covered with plain Bridgewater tiles. There are separate departments for girls, boys, and infants, with separate playgrounds. In each playground a covered playshed is provided, and the sanitary offices are spacious and convenient, and fitted with Adams's latest improved patent syphonic

multiple apparatus, with automatic flushing cisterns. The drainage throughout is arranged on the most modern principles, and all has been subjected to the hydraulic test. The playgrounds are asphalted. Each department has two entrances for the scholars and one for the teachers; cloak-rooms and lavatories are provided of the most modern type. There is a central hall for each school, measuring 40ft. by 34ft., and 30ft. high, well lighted and ventilated. Surrounding this hall are class-rooms with accommodation for sixty scholars in each. A room is set apart as a centre for cookery classes. This is approached by a separate entrance from the girls' playground. There are also a chemistry room and drawing class-room, each 26ft. by 24ft.; separate sitting-rooms for the head master and mistress, also for the assistants of each department. There are also laundry and drying-rooms, and a carpenter's shop. The whole of the work has been under the immediate personal supervision of Mr. T. W. A. Hayward, surveyor, of Hillesley and Weston-super-Mare. The heating of the building is by low-pressure hot water, one pipe relief system.

HARROGATE.—We learn that at the Royal Baths the marble mosaic floors have been laid throughout by Mr. J. F. Ebner, of London. The mosaic is mostly Roman-Venetian, and Ebner's patent marble Terrazzo. The ladies' and gentlemen's dressing hall and waiting rooms are laid in oak parquet on concrete, and the dressing rooms, passages, and winter gardens in pitch pine blocks on concrete, upon Mr. Ebner's patent system.

SOCIETY MEETINGS.

Royal Archaeological Institute.—The annual summer meeting of the Royal Archaeological Institute was opened at Dorchester on the 4th inst. The secretary of the meeting is Mr. Mill Stephenson, and the local secretary is Mr. H. J. Moule, curator of the Dorset County Museum. The president for the year, General Pitt Rivers, delivered his presidential address, dealing chiefly with his excavations at Rushmore and his discovery of flints in Egypt. Among those present were Sir H. Howorth, Professor Boyd Dawkins, Professor Clarke, the Rev. Sir T. Baker, and other well-known archaeologists. The members visited various objects of interest in the town, under the guidance of Mr. Moule, including the Roman Amphitheatre and the County Museum.

Newcastle Society of Antiquaries.—At the monthly meeting of the Society of Antiquaries of Newcastle-upon-Tyne, the secretary reported having received, on behalf of the Society, from Mr. Hugh W. Young, a drawing of what is claimed to be the oldest tombstone in Moray. This remarkable stone was unearthed in 1890, at the very point of the promontory at Burghhead. Mr. Nicholson, of Oxford, had translated the inscription, which was lettered in the early type of Roman Christian stones, as recording the graves of "Mac Bead and of the daughter of Le." The stone had been the dividing stone of two burial plots of the Mac Bead and Le families. Mr. Nicholson fixed the date of the stone as being, perhaps, about the year 1000, while Professor Sayce thought it might be as old as the sixth century.—Sir Gainsford Bruce presented a printed pamphlet regarding the memorial erected in Newcastle Cathedral to his father, Dr. Collingwood Bruce.—Dr. Hodgson gave a discursive description of a journey in Apulia, starting from Barletta.

It has become necessary to make substantial enlargement in the shape of a new wing to the Wesleyan Chapel, East Kirkby. The contract has been let to Mr. W. Rigley for £532.

The construction will be commenced almost immediately of a new quay in Brindisi Harbour, alongside which the Peninsular and Oriental steamers will be moored. This new quay will adjoin the harbour railway station. The quay will be roofed the whole distance from the steamer berth to the station.

Trade and Craft.

MESSRS. C. P. KINNELL AND CO.

The principles and construction of hot-water apparatus is a subject which for years has claimed the earnest attention of Messrs. C. P. Kinnell and Co., of 65, Southwark Street, S.E., and their wide experience in and grasp of all matters pertaining to a satisfactory solution of the difficulties involved has enabled them to place hot-water apparatus on the market which has earned widespread popularity. Messrs. Kinnell's Silver Medal Horse-shoe boiler has been greatly improved by the addition of a hot blast into furnace, in combination with a tilting bottom grate and a draught-regulating valve, which works automatically under any conditions. The great waste of heated air in ordinary boilers, through the exposure of the boilers themselves, is utilised in the "Horse-shoe" by being carried into the furnace for the purpose of supporting combustion. A greater depth of furnace, intense heat against back of boiler, special means for the regulation of the amount of air gaining access to the furnace, thus easily securing a uniform rate of combustion, are a few of the advantages of this apparatus. Another boiler, the "Southwark," has been specially designed for working with very shallow drainage, and is capable of heating long ranges of piping. Principal among the radiators illustrated in the Company's catalogue are the "Kinnell," the "Mammoth," and the "City." The first-mentioned has a projection of 3in. only; it has eight tubes in every 13in., and each section connects into the top and the bottom waterways, which are continuous. The "Mammoth" is of simple construction, any section being removable by withdrawing the top and bottom bolts. It is equally suitable for steam or low-pressure hot water, and has been specially designed to give increased heating power in the same length and height occupied by the "Kinnell," the projection from back to front only being greater. The "City" radiator is of somewhat more ornamental design, the ornamentation upon the castings having a highly decorative effect. A large variety of castings are also illustrated in the catalogue.

RAILWAY EXTENSION.

There is talk just now of railway extension and expansion in all quarters of the globe. Some while since a good deal was heard of what was about to be done in this direction in India and in Northern China, and now from Amsterdam there comes information that the Dutch authorities propose to construct several lines of railway in the Netherland Indies, and that survey parties are about to leave Holland for Java and Dutch New Guinea for this purpose. The necessary powers are to be conferred upon a syndicate of bankers and merchants which has been formed in Holland, and which will lease the lines when built from the Government, and about 700 miles of line are in all to be laid. A report comes simultaneously from Brussels to the effect that contracts are to be placed towards the end of the month for some 3000 tons of rails and a quantity of steel bridge work for Congo railway development. A survey party, consisting of five engineers, is leaving Brussels about September 5th to prepare for the construction of a new line further into the interior, in order to facilitate the transport of rubber and ivory. There remains to be added a report that an American syndicate has acquired concessions from the Mexican Government for the construction of the connecting lines to form a trans-continental system from the Atlantic to the Pacific.

MONT BLANC MOUNTAIN RAILWAY.

The Mont Blanc Mountain Railway is in swift progress. The works along the Arve, from Le Fayet to Chamounix, will soon be completed, and then they will proceed with the actual mountain railway, from Chamounix (3400ft. across Montanvert, 6250ft.) to the Mer de Glace. The length of this mountain line

will be 5.5 kilometres, and the ascent will amount to about 900 metres. The first half of the climb of the railway carriages will be effected by the adhesion system, the other half by the cog-wheel system, as on the two Rigi railways. It is anticipated that the railway to the Mer de Glace will be completed in the year 1900.

THE RAILWAY UP THE JUNGFAU.

The most extraordinary of all modern railway projects, the line to the summit of the Jungfrau, is being pushed forward with all earnestness. About 150 Italian navvies are at work upon the little tunnel below the Eiger glacier, and have nearly completed that part of the work. It is expected that by the beginning of September the whole line will be finished as far as the Eiger glacier. The electricity works at Lauterbrunnen are preparing to supply the necessary force for the boring operations in the great tunnel. It is now under consideration whether the works shall be carried on during the winter. In case the proposal should be adopted, the most extensive and careful preparations will have to be made for the housing and nourishment of the workers under such utterly unprecedented conditions.

THE NEW CARBON WORKS AT GREENOCK.

The new carbon works in Greenock, belonging to the British Aluminium Company, Limited, opened by Lord Kelvin a few days ago, situated in Baker Street, are intended for the manufacture of carbons for the reducing furnaces at Foyers, the raw material being retort carbon, a bye product of the gas-works, a large quantity of which is obtained from the Glasgow gasworks and from other large towns in Scotland. The chief features of the process are the great pressure at which the carbons are moulded by powerful hydraulic machinery, and an unique annealing furnace heated by producer gas made by plant supplied by the Dowson Economic Gas and Power Company Limited. This process requires a certain amount of power, and this is supplied by the Greenock Water Trust through the existing conduit. The resident engineer of the Company is Mr. H. J. Bubb, and the consulting engineers are Messrs. McArthur and Orkney, City Buildings, Greenock.

New Roman Catholic day-schools, erected at a cost of £4000, were recently opened at Batley.

The new wing which has been placed to the Rochdale Infirmary as a memorial of the Diamond Jubilee year was recently opened.

An anonymous philanthropist offers to contribute £10,000 towards the provision of a large general hospital for the parishes of Lambeth, Camberwell, and Battersea. It is stipulated that the contract for the erection of the hospital shall be entered into not later than August, 1899, and that no medical school shall at any time be formed or carried on in connection with the institution.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN (N.B.)—For the execution of road works, Leaside-road and Holburn-street, for the Town Council. Mr. Wm. Dyack, Borough Surveyor, Town House, Aberdeen.

J. Eyre, Aberdeen .. £1,408 16 2
ANDERSHAW—New classroom to St. Stephen's Central Schools. Mr. J. H. Burton, Architect, 2, Guide-lane, Hooley Hill.
 James Whitehead, Ashton-under-Lyne £268 15
 Joseph Clayton, Denton .. £194 0
 James Ridyard, Ashton-under-Lyne .. 208 10
 Exors. of T. Storer, .. 191 10
 Charles Evans, Ashton-under-Lyne .. 200 0
 Z. Pike and Son, .. 180 0
 Hoolley Hill* .. 180 0
 * Accepted.

BELVEDERE (Kent)—Accepted for alterations and new drainage at the "Belvedere" Hotel. Mr. Albert L. Guy, Architect, Bedford-row House, W.C., and 76a, High-street, Lewisham, S.E.

B. Weatherley, High-street, Lewisham, S.E. .. £500
BIRTLEY—For the erection of a new police station, for the County Council. Mr. Wm. Crozier, C.E., County Surveyor, Shire Hall, Durham. Quantities by J. Ezra Miller, Sunderland.
 Draper and Sons .. £839 10 0
 Davison & Bolam .. £731 2 4
 F. Caldwell .. 832 0 0
 Burnett and Son, .. 784 5 0
 Birtley (accepted) .. 701 5 8

BISHOP AUCKLAND—For widening Newton Cross Bridge, for the Durham County Council. Mr. Wm. Crozier, C.E., County Surveyor, Durham.
 G. H. Bell, Bishop Auckland .. £961 19 0

BLACKBURN—For the reconstruction of offices for the improved sanitation of Wards Nos. 2 and 10, Blackburn and East Lancashire Infirmary. Messrs. Simpson and Duckworth, Architects, Richmond-chambers, Blackburn.
 J. Catterall .. £413
 W. H. Law .. £366
 J. Barker .. 397
 W. Edmundson .. 350
 J. Focit and Son .. 376
 T. P. Wilson and Sons, .. 370
 Lower Darwen* .. 342
 J. Sharples .. * Accepted.

BLACKHEATH—Accepted for the erection of a villa residence for the Rev. George Gates, M.A. Mr. Albert L. Guy, Architect, Bedford-row House, W.C., and 76a, High-street, Lewisham, S.E.
 Kennard Bros., Lewisham Bridge, S.E. .. £1,700

BRIDLINGTON—For the erection of three houses for Dr. E. Hutchinson. Mr. J. Earnshaw, Architect, Bridlington Quay.
 Bailey .. £660 0 0
 J. R. Kennard, Bridlington Quay* .. £575 0 0
 T. Wood .. 639 15 0
 E. Wilson .. 578 1 5
 * Accepted.

CARMARTHEN—For the erection of class-room and house, Bankforesfen, for the Llangendeirne School Board.
 Carpenter, D. Davies, Ffynonmenin, Llanelly .. £912
 Masonry—Gomer Davies, Pontyates, Kidwelly, J. Mainwaring Richards Bros., Cross Hands, Llanelly .. 885

CHELTEMHAM—For the erection of a kursal, municipal offices and winter garden, for the Corporation of Cheltenham. Mr. E. R. Robson, Architect, 9, Bridge-street, Westminster, S.W. Quantities by Messrs. W. H. Barber and Sons, 22, Buckingham-street, Adelphi, W.C.
 Norris and Sons .. £52,500
 Parnell and Son .. £46,850
 Foster and Dicksee .. 51,855
 Estcourt and Son .. 46,600
 J. Bentley .. 51,380
 A. C. and S. Billings, .. 47,370
 Cheltenham* .. 22,129
 J. Thompson .. 47,290
 * For Municipal Offices only.

COCKERMOUTH—Accepted for the execution of sewerage works, Allerby and Oughterside, for the Rural District Council. Mr. J. B. Wilson, C.E., Court-buildings, Cockermouth. Quantities by the Engineer:
 James Watson, Crosby, Maryport, No. 1 .. £86 8 0
 Allerby .. 147 10 1
 Oughterside .. 238 18 1
 James Watson, Crosby, Maryport, No. 2 .. 147 10 1

CROYDON—For alterations to Campden Lodge, Addiscombe-road. Mr. A. Broad, Architect, 3, High-street, Croydon.
 E. J. Saunders .. £430
 D. W. Barker .. £260
 E. P. Bullock and Co. .. 419
 J. Burton and Son .. 360
 Hanscomb and Smith .. 387
 A. Bullock (accepted) .. 355

DAGENHAM—For the execution of drainage works, Small-pox Hospital, for the West Ham City Council. Mr. Lewis Angell, Borough Engineer.
 Wm. Gibbs & Co., £1,113 3 5
 Gregar and Son .. £626 0 0
 Wm. Tradey .. 708 0 0
 J. Jackson, Plaistead .. 614 7 6
 T. Adams .. 755 8 4
 J. Lov (accepted) .. 614 7 6

DOVER—For the execution of sewerage and drainage works in the district, for the Town Council.
 G. Bell .. £3,609 5 5
 J. W. Jackson .. £4,666 9 8
 S. Saunders .. 5,443 17 8
 W. H. Saunders .. 4,908 16 6
 and Co. .. 4,640 0 0
 [Surveyor's estimate, £4,950.]

Surface Drainage.
 S. Saunders .. £2,265 18 4
 J. W. Jackson .. £1,966 0 0
 F. Osman .. 2,172 12 5
 G. Munro .. 1,900 0 0
 W. H. Saunders .. 2,080 0 0
 J. Jackson .. 1,819 2 4
 and Co. .. 2,080 0 0
 [Surveyor's estimate, £1,650.]

DROGHEDA—For the erection of three dwelling-houses, Chord-road, for Miss McGovern. Mr. L. Turley, C.E., 83, West-street, Drogheda.
 M. Pentony .. £594
 Collins Bros. .. £2510
 P. J. Caffrey .. 589
 P. McCann, Drogheda* .. 465
 S. Smullen and Son .. 520
 * Accepted.

DUDLEY HILL—Accepted for the erection of a warehouse. Mr. T. Leadley, Architect, Coleridge-place, Bradford.
 Masonry—Geo. Hullah, Wapping-road, Bradford
 Joinery—H. Waterhouse and Sons, Dudley-hill, Bradford
 Plumbing—J. Booth and Son, Dudley-hill, Bradford
 Plastering—T. Pickles, Dudley-hill, Bradford
 Slating—Hill and Nelson, Edmund-street, Bradford
 Ironwork—Roberts and Co., Ltd., Dudley-hill, Bradford .. £1,420

EARL'S COLNE—For the extension of grammar school buildings, consisting of the erection of master's house and boarding accommodation for twenty-four boys, with out-buildings, &c.
 J. Kimberley .. £4,500
 Bowman and Sons .. £4,056
 J. Broderick .. 4,443
 G. Rogers, Earl's Colne* .. 3,715
 E. West .. 4,573
 Everett and Sons .. 4,255
 * Accepted.

EAST WICKHAM—For the erection of the "Station" Hotel, Dover-road. Mr. Albert L. Guy, Architect, Bedford-row House, and 76a, High-street, Lewisham, S.E. Quantities by Mr. A. R. Brede, 58, Theobald's-road, W.C.
 J. Godfrey and Son .. £7,253
 Jerrard and Sons .. £5,883
 Antill and Co. .. 5,997
 T. Knight .. 5,799
 Pritchard & Renwick .. 5,945
 J. Otway, Chislehurst* .. 5,580
 * Accepted.

EBBW VALE—For improving road from Crom to Aberbeeg, for the Urban District Council. Mr. T. J. Thomas, Engineer, District Council Offices, Ebbw Vale.
 N. Bagley .. £5,559 8 2
 Batchelor and Rowland & Lloyd .. 5,449 6 8
 Snowden .. £4,142 10 10
 C. Gardner .. 5,288 6 7
 J. Monks and Co., .. 4,908 7 2
 L. and G. Gross .. 4,908 7 2
 Crumlin .. 3,644 10 10
 J. Preece .. 4,335 18 0
 * Accepted.

GATEHEAD-ON-TYNE—For the erection of St. Chad's Parish Hall Schools, &c. Mr. Eugene E. Clephan, Architect, St. Nicholas-chambers, Newcastle-on-Tyne.
 J. and W. Lowery .. £1,803 18 0
 Turner Bros., Middlemas Bros., 1,633 0 0
 Bensham-road, T. and R. Lamb, 1,623 15 8
 Gateshead-on-Tyne .. £1,430 6 8
 J. Ross .. 1,373 1 1
 Tyne* .. 1,490 5 2
 * Accepted conditionally.

GLEADSDALE AND CARFIELD-ROAD—For the erection of stores and houses, Gleadside and Carfield-road. Messrs. Hall and Fenton, Architects, 10, Paradise-square, Sheffield. Quantities by the Architects:
 Masonry—J. A. Lenthall, Stanforth-road, Darnall, Sheffield .. £1,445 0 0
 Joinery—C. H. Gilliam, Langdon-street, Sheffield .. 922 0 0
 Slating—J. A. Lenthall, Darnall, Sheffield .. 103 0 0
 Plastering—Chadwick & Sons, Victoria-street, Sheffield .. 154 16 0
 Plumbing—H. Waddilove, Broad-street, Sheffield .. 235 0 0
 Painting—J. Clark, St. Mary's-road, Sheffield .. 54 6 10

HANLEY (Staffs.)—For the erection of school buildings, Clarence-street, for the School Board. Messrs. Scrivenner and Sons, Architects, Howard-place, Hanley.
 J. Bagnall .. £3,500 0 0
 A. Gorden .. £3,381 10 0
 N. Bennett .. 3,500 0 0
 G. Ellis .. 3,349 0 0
 T. Godwin .. 3,400 0 0
 C. Cornes, Hanley* .. 3,250 0 0
 * Accepted, subject to the approval of the Education Department.

KING'S LYNN—For the erection of pumping-station at waterworks, Gayton, for the Corporation. Mr. E. J. Silcock, C.E., Town Hall, King's Lynn.
 T. Cutburt .. £3,900 0 0
 H. G. Rudrum .. £3,477 0 0
 R. Dye .. 3,693 0 0
 Read and Wildbur .. 3,350 0 0
 Collins and Barber .. 3,530 0 0
 King's Lynn* .. 3,350 0 0
 Medwell & Foreman .. 3,500 10 0
 * Accepted.

KINGSTON—For the erection of Kingston Endowed Schools. Mr. A. J. Pilkington, Architect. Mr. I. T. Carew, Surveyor.
 F. G. Minter (revised tender) .. £8,076 17

KIRKBY-IN-ASHFIELD—For the erection of store buildings. Messrs. F. Ball and Lamb, Architects, 5, Hounds-gate, Nottingham.
 W. J. Bains .. £725
 W. F. Bains .. £650
 J. Osborn .. 700
 H. Gilbert, East Kirby, .. 650
 W. Rigley .. 682
 Notts* .. 650
 R. S. Webster .. 655
 * Accepted.

LEAVESDEN—For alterations to the St. Pancras Schools, for the Guardians of St. Pancras Union. Mr. C. P. Ayres, Architect, Watford.
 Kimberley, Banbury .. £1,426
 Neal, Watford .. £1,290
 Brightman, Watford .. 1,395
 Eames, Watford .. 1,251
 Waterman, Watford .. 1,513
 Clark, Watford .. 1,295
 Darvill, Watford .. 1,290
 T. Turner, Ltd., Watford .. 1,197

LINCOLN—For the erection of a tall chimney, Brayford Side, for the Corporation. Mr. R. A. Macbrair, City Surveyor, Lincoln.
 Myles and Warner .. £1,289 11
 H. S. and W. Close, Lincoln* .. £1,175 0
 W. Pattinson and Sons .. 1,253 0
 * Accepted.

LINCOLN—For the erection of electricity works, offices and stores, Brayford Side, for the Corporation. Mr. R. A. Macbrair, City Surveyor, Lincoln.
 J. M. Harrison .. £4,990 0 0
 Halkes Bros. .. £3,996 0 0
 W. Pattinson and Sons .. 4,553 0 0
 W. Wright and Son, Lincoln* .. 3,756 9 4
 H. S. & W. Close .. 4,081 0 0
 * Accepted.

LONDON—For building orchestral saloons and thirty additional class-rooms, at the Guildhall School of Music, for the Corporation of the City of London. Mr. A. Murray, City Surveyor, Architect. Quantities by Mr. R. J. Stamp:
 Asby and Horner .. £20,571
 Patten and Pether .. £17,421
 Lawrence and Sons .. 20,423
 Ingham .. 17,333
 Mowlem and Co. .. 20,068
 Chessum .. 17,333
 Larke and Son .. 18,832
 Atherton and Dolman .. 17,320
 Kirk and Randall .. 18,319
 Collis and Sons .. 17,207
 Howel J. Williams .. 18,295
 Perry and Co.* .. 16,995
 * Accepted.

LONDON—For pulling down and rebuilding No. 90, High-street, Marylebone. Mr. J. Randall Vining, Architect, 89, Chancery-lane, W.C.
 A. Scott and Son .. £2,137
 J. and C. Bowyer .. £1,793
 Spiers and Son .. 1,959
 Perkins and Co. .. 1,793
 F. T. Chinchin .. 1,820
 Jerrard and Sons .. 1,750
 J. Myring and Co. .. 1,799
 Coulsell Bros.* .. 1,743
 * Accepted.

LONDON—For pulling down and rebuilding of No. 4, High-street, Marylebone. Mr. J. Randall Vining, Architect, 89, Chancery-lane.
 C. Wall .. £2,105
 J. and C. Bowyer .. £1,738
 J. and C. Woodman .. 2,020
 H. M. Dove* .. 1,695
 E. Lawrence and Sons .. 1,995
 * Accepted.

LONDON—For pulling down and rebuilding of No. 88, High-street, Marylebone. Mr. J. Randall Vining, Architect, 89, Chancery-lane.
 F. and H. F. Higgs .. £2,398
 H. Titmas and Sons .. £2,140
 C. Wall .. 2,376
 H. M. Dove .. 2,690
 W. Johnson and Co. .. 3,224
 J. and C. Bowyer* .. 1,993
 J. Myring and Co. .. 2,157
 * Accepted.

LONDON—For the erection of entrance lodge at infirmary, Dartmouth Park Hill, for the St. Pancras Guardians. Messrs. Segrave, Browett, and Taylor, Architects, 9, Warwick-court, High Holborn, W.C.
 H. Green .. £625
 Barrett and Power .. £559
 Gardner and Hazle .. 582
 T. Sobey .. 518
 W. Thompson .. 577
 J. W. Dixon, Highgate* .. 500
 Coulsell Bros. .. 583
 J. Harris .. 497
 * Accepted.

LONDON—Accepted for the erection of Coroner's Court and mortuary, for the Hammersmith Vestry. Mr. H. Muir, Surveyor, Vestry Offices, Hammersmith.
 T. W. Thomas, Black Lion-lane, Hammersmith .. £3,743

LONDON—For the erection of shops and warehouses at 178 and 180, Goswell-road. Mr. Charles Bell, Architect.
 F. G. Minter .. £2,300

LONDON—For alterations and additions to the "Globe" public house, Great Dover-street, Borough, S.E., for Mr. W. Morris. Mr. Albert L. Guy, Architect, Bedford-row House, W.C., and 76a, High-street, Lewisham, S.E. Quantities by Mr. A. R. Brede, 58, Theobald's-road.
 Johnson and Co. .. £3,895
 Pritchard and Renwick .. £3,134
 Simmonds and Son .. 3,658
 J. Godfrey and Son, Antill and Co. .. 3,248
 Evering-road, Clap-courtney & Fairbairn .. 3,201
 ton, N.E. (accepted) .. 3,123

LONDON—For alterations and repairs to Nos. 13 and 15, Rushey Green, Catford, S.E., for Mr. W. J. Taylor, Lewisham, S.E. Mr. Albert L. Guy, Architect, Bedford-row House, W.C., and 76a, High-street, Lewisham, S.E.
 Seotney & Wootton .. £469
 Jerrard and Sons .. £275 0 0
 J. Laird .. 375 0 0
 J. Watt, Catford* .. 256 0 0
 Kennard Bros. .. 308 0 0
 A. T. S. Carter .. 79 0 0
 * Accepted.

LONDON—For alterations and additions to the "Ship" public-house, High-street, Norwood, S.E. Mr. Albert L. Guy, Architect, Bedford-row House, W.C., and 76a, High-street, Lewisham, S.E. Quantities by Mr. F. Bull, 30, Godfrey and Son, W.C.
 Godfrey and Son .. £3,327
 Bryan and Sons .. £3,140
 Antill and Co. .. 3,240
 Jerrard & Sons, Loom-pit Vale, Lewisham, Kennard Bros. .. 3,155
 S.E. .. 3,069

LONDON—For alterations and additions to the "King's Arms" inn, Barnsbury-road, N., for Mr. F. O. Ficken. Mr. Albert L. Guy, Architect and surveyor, Bedford-row House, W.C., and 76a, High-street, Lewisham, S.E.
 J. Godfrey and Son .. £3,688
 Pritchard and Renwick .. £2,999
 Simmonds and Son .. 3,486
 Jerrard and Sons .. 3,291
 Beer and Gash .. 3,051
 Courtney & Fairbairn .. 2,969
 S. Jerrard & Son .. 3,027
 F. Voller, Wood Green* .. 2,840
 * Accepted.

LONDON—For alterations, &c., to the "Market Tavern," 144, York-road. Mr. Albert L. Guy, Architect.
 Antill and Co. .. £4,586
 Fittings .. £1,201
 Ransom and Sons .. 4,527
 1,141
 Courtney and Co. .. 4,496
 1,236
 Simmonds .. 4,391
 879
 Godfrey and Sons .. 4,265
 2,310
 Jerrard and Sons .. 4,021
 981
 Godson .. 4,021
 981
 Peterson .. 4,021
 981

LONDON.—For additions and alterations at 16, Lincoln's Inn-fields, for the Jewish Christianity Society. Mr. C. C. Bradley, Architect:—
Godson and Son ... £1,318 Oldrey ... £985
Faulkner and Sons ... 1,153 F. G. Minner ... 897

LONDON.—For alterations to 76 to 78, Courthill-road, Lewisham. Mr. Albert L. Guy, Architect:—
J. Lawrence ... £230 Wm. Anderton ... £220
Ernest Mills ... 253 Weatherley and Sons ... 213

LONDON.—For the erection of steam laundry, at Lordship-lane, East Dulwich, for Messrs. Golden. Mr. E. J. Strevens, Architect:—
J. and F. Higgs ... £2,900 Burman and Co. ... £2,662
Pretty and Co. ... 2,800 Tyerman and Co. ... 2,650
Holiday & Greenwood ... 2,720 H. Line ... 2,478
W. Downs ... 2,680

LONDON.—For additional heating at Blackwall-lane School (Greenwich Marsh), for the London School Board. Mr. T. J. Bailey, Architect:—
J. Defries and Sons, Duffield and Co. ... £27 0
Ltd. ... £144 10 Vaughan and Brown, Ltd. ... 24 0
J. Fraser and Son ... 88 0
J. and F. May ... 37 10 J. C. and J. S. Ellis, Ltd. ... 23 10
J. Wontner - Smith, Ltd. ... 23 0
Gray and Co. ... 28 3 Stodge and Co.* ... 23 0

LONDON.—For new boundary wall in Leven-road (Bromley Hall-road site), for the London School Board. Mr. T. J. Bailey, Architect:—
A. W. Derby ... £273 D. Gibb and Co. ... £215
G. Munday and Sons ... 232 J. T. Robey ... 193
J. F. Holliday ... 225 G. Wales* ... 183

LONDON.—For providing and fixing wirework on iron railing at Graystone-place Schools (City), for the London School Board. Mr. T. J. Bailey, Architect:—
Rowson, Dreyer & Co. ... £11 0 Braby and Co.* ... £9 15

LONDON.—For additional fittings and furniture, &c., at Clerkenwell-close Stores, for the London School Board. Mr. T. J. Bailey, Architect:—
Illingworth, Ingham, W. H. Lascelles and Co.* ... £415 and Co. ... £426

LONDON.—For coverings to loading stages at Clerkenwell-close Stores, for the London School Board. Mr. T. J. Bailey, Architect:—
Kirk and Randall ... £230
Hayward Bros. and Eckstein, Ltd. ... 195
F. Braby and Co., Ltd.* ... 159

LONDON.—Tender for special school, manual centre, &c., at Enfield-road School (De Beauvoir Town), for the London School Board. Mr. T. J. Bailey, Architect:—

Extra amount required for building brickwork in cement.
Dove Bros. ... £4,614
J. Grover and Son ... 4,532
E. Lawrence and Sons ... 4,589
Treasure and Son* ... 4,297

LONDON.—For additional heating of Haguenet-schools (Bethnal Green), for the London School Board. Mr. T. J. Bailey, Architect:—
H. C. Price Lea & Co. ... £108 0 0 W. Simmons ... £27 15 0
Comyn Ching and Co. ... 99 10 0 Duffield and Co. ... 66 0 0
Stevens and Sons ... 95 0 0 J. Grundy* ... 62 16 6

LONDON.—For enlarging iron building, &c., at Kneehill Schools (Plumstead), for the London School Board. Mr. T. J. Bailey, Architect:—
T. Cruwys ... £380 T. J. Hawkins ... £202 10
J. Lysaght, Ltd. ... 290 J. Mitson ... 196 5

LONDON.—For additional heating at Larkhall-lane Schools (Clapham), for the London School Board. Mr. T. J. Bailey, Architect:—
H. C. Price Lea & Co. ... £249 0 Comyn Ching and Co. ... £34 15
J. F. Clarke and Sons ... 41 0 W. Simmons ... 31 10
Vaughan and Brown, Ltd. ... 38 0 J. C. & J. S. Ellis, Ltd. ... 30 0
J. Defries & Sons, Ltd. ... 37 10 Duffield and Co.* ... 23 0
Strong and Collings ... 35 0

LONDON.—For repairing casements, &c., at Laxton-street Schools (Bermondsey), for the London School Board. Mr. T. J. Bailey, Architect:—
W. Downs ... £155 0 G. Brittain ... £108 0
Rice and Son ... 146 0 Johnson and Co.* ... 82 10

LONDON.—For enclosing, &c., additional land, and executing works on site, for the London School Board. Mr. T. J. Bailey, Architect:—
Rice and Son ... £1,003 0
W. Akers and Co. ... 871 0
F. G. Minner ... 850 0
J. Garrett and Son ... 843 0
D. Charteris ... 816 0
T. Nicholson ... 792 0
Thomas and Cooper ... 776 10
J. F. Ford ... 755 0
Jones and Groves ... 750 0
W. V. Goad ... 675 0
H. Leney* ... 675 0

LONDON.—For additional heating apparatus at Pope-street School (Eltham), for the London School Board. Mr. T. J. Bailey, Architect:—
H. C. Price Lea & Co. ... £115 0 J. Wontner - Smith, Gray, and Co. ... £75 0
J. Gray ... 82 0 J. C. & J. S. Ellis, Ltd. ... 67 0
J. F. Clarke and Sons ... 79 0 W. G. Cannon* ... 66 15
J. Defries & Sons, Ltd. ... 75 0

LONDON.—For adaptation of House, No. 108, Lancaster-road, Portobello-road site (North Kensington), for a special school and a housewifery centre, for the London School Board. Mr. T. J. Bailey, Architect:—
G. Chase and Son ... £237 0
R. A. Yerbury & Sons ... 375 0 F. T. Chinchin ... 262 18
T. Cruwys ... 360 0 W. R. and A. Hide* ... 258 15
H. Eady ... 344 5

LONDON.—For erecting iron buildings, Santley-street site (West Lambeth AB), for the London School Board. Mr. T. J. Bailey, Architect:—
D. Charteris ... £1,125 0 T. J. Hawkins ... £1,020 0
Humphreys, Limited ... 1,114 0 J. Mitson ... 998 17
W. Harbrow ... 1,075 0 Croggon and Co., Ltd.* ... 937 10
T. Cruwys ... 1,050 0

LONDON.—For providing iron railings, wire netting, &c., Hart-street School (Westminster), for the London School Board. Mr. T. J. Bailey, Architect:—
T. Cruwys ... £23 0 Clarke and Hunt* ... £8 10

MERTHYR TYDFIL.—For the erection of seventeen houses, for the Garth Building Club. Mr. Matthew Warlow, Architect, Warlow-street, Merthyr Tydfil:—
John James ... £4,332 17 6 Benjamin Davies ... £3,816 0 0
John Jenkins ... 4,295 0 0 J. Francis Jones* ... 3,382 0 0
Samuel Hawkins ... 3,955 0 0

MIDDLEBICH.—For the erection of technical schools and free library buildings, for the Urban District Council. Mr. R. T. Worth, C.E., Town Hall-chambers, Middlewich:—
E. W. Bostock ... £3,425 0 Clarke and Son, J. Matthews ... 2,298 0 Middlewich* ... £2,020 0
Birchall Bros. ... 2,087 17

* Accepted.

NEWTON-LE-WILLOWS (Lancs).—For the erection of purifying house, &c., at gasworks, for the Newton-in-Makerfield Urban District Council. Mr. Richd. Brierley, engineer, Town Hall, Earlstown, Newton-in-Makerfield:—
G. Fanning ... £1,279 17
Sayce and Randle ... 1,148 0
Eli Bunting ... 1,063 0
Fitzgerald Bros., Earlstown* ... 1,094 15
Exclusive of iron roof.

ST. ALBANS.—For the erection of four villas in Upper Worley-road. Mr. Percival C. Blow, Architect, 7, London-road, St. Albans:—
Bushell ... £1,335 Miskin and Son ... £1,275
Boff Bros. ... 1,310 J. and W. Savage* ... 1,249
* Accepted subject to certain slight deductions.

SPORLE (Norfolk).—For the erection of a church. Mr. Herbert J. Green, Architect, 31, Castle Meadow, Norwich:—
Bardell Bros. ... £1,709 5 3 Cornish and Gaymer ... £1,644 12 0
R. Chapman ... 1,774 16 0 W. J. Larner ... 1,559 18 0
J. Youngs & Son ... 1,671 18 0

SUTTON (Surrey).—Accepted for alterations and additions and erecting billiard room at the "Grange" public house, High-street. Mr. Albert L. Guy, Architect, Bedford-house, W.C., and 76A, High-street, Lewisham, S.E.:—
Harris, Sutton ... £3,500

SWINDON.—For the construction of settling tanks and filters, &c., Broomie, for the Urban District Council. Messrs. Shopland and Redman, engineers, Newport-street, Swindon. Quantities by the engineers:—
W. L. Meredith ... £1,842 19 9 W. H. Smith and H. Hill ... 1,595 2 9 Son, Clifton, B. Winchcombe ... 1,567 8 0 Bristol* ... £1,375 5 7
* Amended. Accepted.

TAVISTOCK.—For the construction of drainage works, for the Rural District Council. Mr. G. D. Bellamy, C.E., 6A, Courtenay-street, Plymouth:—
W. C. Shaddock ... £2,761 E. Duke, Plymouth* ... £1,680
J. Fisher ... 1,920
* Accepted.

WALSALL.—For the erection of school buildings, Croft-street, Birchills, for the School Board. Messrs. Bailey and McConnell, Architects, Bridge-street, Walsall:—
H. Lovatt ... £2,908 W. Kendrick ... £2,720
J. Harley and Sons ... 2,575 J. Guest and Son ... 2,675
P. Tildesley ... 2,800 W. Wistance ... 2,565
J. Mallin ... 2,850 J. Dallon ... 2,530
G. Lynes ... 2,819 S. Wootton, Walsall* ... 2,439
H. Willcock ... 2,730
* Accepted.

WATFORD.—For alterations to premises, 159, High-street, for Mr. E. Anbun. Mr. C. P. Ayres, Architect, Watford:—
Brightman ... £233 Judge, Watford* ... £480
Barnes and Williams ... 482
* Accepted.

WATFORD.—For stripping, re-glazing, and re-slating the roof of the Clarendon Hall, for the Agricultural Hall Company, Limited. Mr. C. P. Ayres, Architect, Watford:—
Wiggs ... £705 Cambridge ... £543
T. Turner, Ltd. ... 653 Eames, Watford* ... 480
* Accepted.

WIMBLEDON.—For granite concrete paving, for the Urban District Council. Mr. C. H. Cooper, C.E., Council Offices Broadway, Wimbledon:—

Granite Concrete Paving.		Hardcore.		
		2in. thick.	3in. thick.	
2in. thick.	3in. thick.	4in. thick.	6in. thick.	
s. d.	s. d.	s. d.	s. d.	
2 9	3 9	0 6	0 9	
3 8	4 0	0 6	0 7	
3 1	4 2	1 0	1 3	9d.—Stripping surface of path and rolling in cases where the existing hardcore is allowed to be used, at per yard super.
3 2	4 0	0 8	1 0	4d.— do. do.
3 4	4 4	0 5	0 8	4d.— do. do.
In situ	In situ	0 6	0 8	
3 11	4 5	0 6	0 8	
3 8	5 6	0 4	0 6	If laid in Imperial Stone, slabs, per super yard, 5s.
—	3 11*	0 7	0 9	
4 0	—	—	—	Delivered on rail do.
3 10	—	—	—	

* Stuart's Patent Granolithic Stone. Ditto, 4in. thick, 5s.

WIMBLEDON.—For the execution of tar paving works, for the Urban District Council. Mr. C. H. Cooper, C.E., Broadway:—

Tar-paving		Hardcore		
		3in. thick.	4in. thick.	
3in. thick.	4in. thick.	4in. thick.	6in. thick.	
s. d.	s. d.	s. d.	s. d.	
1 10	2 0	0 3	0 4	
2 13	2 6	0 7	0 9	Stripping surface of path and rolling in cases where the existing hardcore is allowed to be used, 13d.
2 2	2 7	0 8	0 10	
2 6	3 0	0 6	0 8	
2 1	2 6	0 6	0 8	If the works were carried out as they were last year, that is, with gravel tar-paving, bottoming, and limestone tar-paving topping.

WATFORD.—For alterations to the "King's Head," Inn, High-street, for Benskin's Watford Brewery, Limited. Mr. C. P. Ayres, Architect, Watford:—
Reed ... £3,710 Waterman ... £3,590
Judge ... 3,696 Brightman, Watford* ... 3,543
* Accepted.

WATFORD.—For the erection of stabling and stores at 95, High-street, for Messrs. Durand, Sedgwick, and Bird. Mr. C. P. Ayres, Architect, Watford:—
Dove ... £1,075 Clark ... £950
Wiggs ... 1,050 Eames ... 944
Waterman ... 1,043 Cambridge ... 927
Edmund Iles, North-road, Wimbledon ... 1,025
Edmund Iles, North-road, Wimbledon ... 2 1
Neal ... 1,020 Watkins, Watford* ... 896
Turner, Ltd. ... 982
* Accepted.

WATFORD.—For the erection of store buildings in the

St. Alban's-road, for the St. Andrew's (Watford) Co-operative Society, Limited. Mr. C. P. Ayres, Architect, Watford:—
Deduct if Fireproof Floor omitted.

Darvill ... £2,890
Brightman ... 2,830
General Builders, Ltd., London ... 2,796
Goss ... 2,694
Dupont ... 2,659
Neal ... 2,625
Waterman ... 2,624
Turner, Ltd. ... 2,534
Watkins ... 2,448
Cambridge ... 2,398
Reed ... 2,350
Eames, Watford (accepted) ... 2,298

WATFORD.—For additions to the Watford District Cottage Hospital. Mr. Charles P. Ayres, Architect, Watford:—
Andrews ... £1,250 Waterman ... £1,060
Neal ... 1,125 Reed ... 1,070
Wiggs ... 1,115 T. Turner, Ltd., Watford* ... 1,067
Darvill ... 1,099
Clifford and Gough ... 1,098 Watkins ... 1,032
Brightman ... 1,090 Cambridge ... 977
Eames ... 1,088
* Accepted.

WATFORD.—For the erection of club room at "The George" Hotel, for Messrs. M. A. Sedgwick and Co., Watford. Mr. C. P. Ayres, Architect, Watford:—
Brightman ... £1,536 Reed, Watford* ... £1,478
Judge ... 1,495
* Accepted, slightly amended.

WEST HAM.—For the construction of foundation at lunatic asylum, Chadwell Heath, Ilford, for the Council. Mr. Lewis Angell, Borough Engineer, Town Hall, Stratford, E:—

Foundations (Contract No. 2).
McCormick and Son ... £17,654 0 0 G. Sharpe ... £11,230 0 0
T. Adams ... 13,349 6 2 Kirk & Randall ... 10,323 0 0
Shillitoe & Son ... 12,800 0 0 G. W. Bell ... 10,306 0 0
J. Jackson ... 11,765 8 0 Gregar and Son, C. Trall ... 11,646 0 0 Stratford* ... 10,130 0 0
* Accepted.

WEST HAM.—For the execution of private street works: Park-lane, Park-place, Abbey-lane, Stratford; and Rochester-avenue, Percy-road, Cloughton-road, Selsdon-road, and Green-street, Upton Park. Mr. Lewis Angell, engineer:—
W. Griffiths ... £8,649 7 10 J. Jackson, Plaistow ... £5,808 11 2
W. Gibbs and Co. ... 6,254 8 7
T. Adams ... 6,060 0 0
* Accepted.

WEYMOUTH.—For the erection of a residence on the Binclaves Estate, for Mr. Alfred Dennis, Messrs. Jennings and Goater, Architects, Bournemouth. Quantities by the Architects:—
G. Bevan ... £1,717 18 Bath and Co. ... £1,542 0
Jones and Son ... 1,678 0 H. Smith ... 1,500 0
G. Whitaker ... 1,644 0 McWilliam and Son ... 1,479 0
W. Purchase ... 1,550 0 F. Horsey (accepted) ... 1,420 0

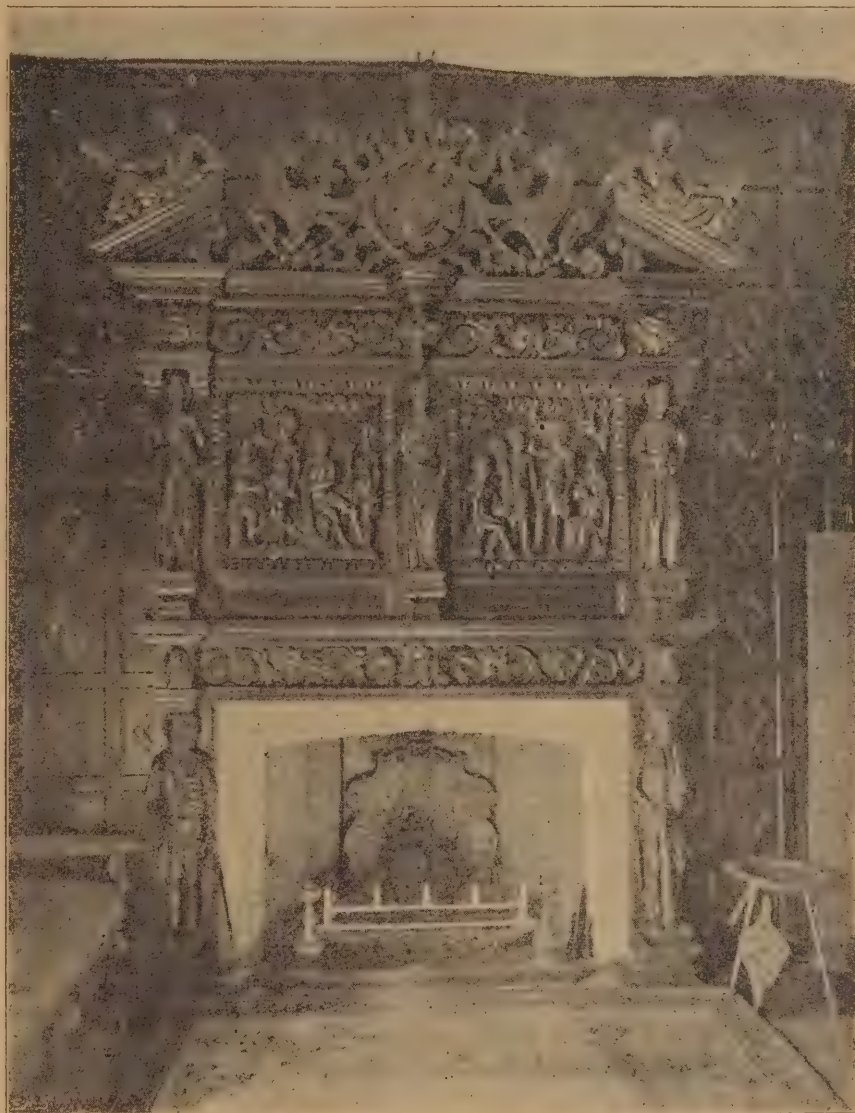


The Effigy on the Tomb.

THERE are few persons who do not experience an emotion of pleasure at beholding an object of Art, the execution of which dates back to ages long since past; and that pleasure is very considerably enhanced when one can ascertain any circumstances in connection with the antiquity—for instance, the time a monument was raised; the station in life of the person it was designed to commemorate. Especially interesting is such information when, as is often the case, the recording inscription has become obliterated by the action of time. It is to antiquarians, chiefly, we owe our information. It is they who have ascertained that monuments of the earliest date are those of stone sarcophagi, the top formed in the shape of a prism, like the sloping roof of a house, to allow of the rain-water running off, for they were always built in the open air. The oldest of such monuments are without inscriptions, and their form alone affords a guide as to their age. It was not until the middle of the twelfth century that these stone coffins began to be ornamented. From that time carvings, chiefly of a grotesque character, but occasionally consisting of armorial bearings, appeared on them. These are the earliest specimens of such sculpture, but they rise in excellence, completeness, and general beauty as the years roll on. The sloping tops gradually disappear with the progress of sculptured emblems. Not content with merely carving the cover of the monument itself, figures were cut separate therefrom, and the tops became flattened for these figures to be laid upon them. This stage of Art was not arrived at until the succeeding century, so that the spectator may be sure that a monument with a flat top is not of greater antiquity than the period mentioned, whether it be supporting an effigy or not. Of figures there are various kinds. Those which have their hands laid on their breasts, with chalices in them, denote, of course, that the person so commemorated was a priest. Prelates are always represented with their insignia—pontificals, croziers, or mitres, whilst knights can be recognised by their armour. Most of them are lying flat on their backs, and often with their legs crossed. These have either been crusaders (*crux*, a cross) or married men; beside these latter a statue of the wife is often laid. The explanation of the married men lying cross-legged like the crusaders is not forthcoming—perhaps it was emblematical of the cross of life. The several descriptions of armour by which the effigies of military men are covered are sure guides as to the times when they lived. Thus warlike figures of the earliest date are found in tegulated or scale armour, like that of William Longsword, Earl of Salisbury, Fair Rosamund's son in Salisbury Cathedral, who died in 1227. Chain armour, or mail composed of small iron rings, is seen in figures of later date, from the reign of Richard Cœur de Lion to that of Henry III. Many specimens of this kind of armour are still extant in country churchyards, *e.g.*, Hitchendon, Bucks. Plate armour seldom appears in knightly effigies more ancient than the latter reign. Female figures represented as wearing a mantle and a large ring, denote that the deceased had taken the vow of chastity. Armorial quarterings of arms annexed to tombs show them to have been

raised subsequently to the fourteenth century, while supporters were not adopted till the reign of Richard II. At a later period arches were raised over tombs to protect them from the action of the weather, but gradually sepulchral monuments were removed within doors and built in Churches. In the course of time it was found that those arched monuments took up too much room, even in the most spacious Cathedral. To lessen this inconvenience, a plan was devised which gave rise to the practice of annexing chapels to the Churches, expressly for containing such mausoleums. These chapels are, in many instances, only separated from the

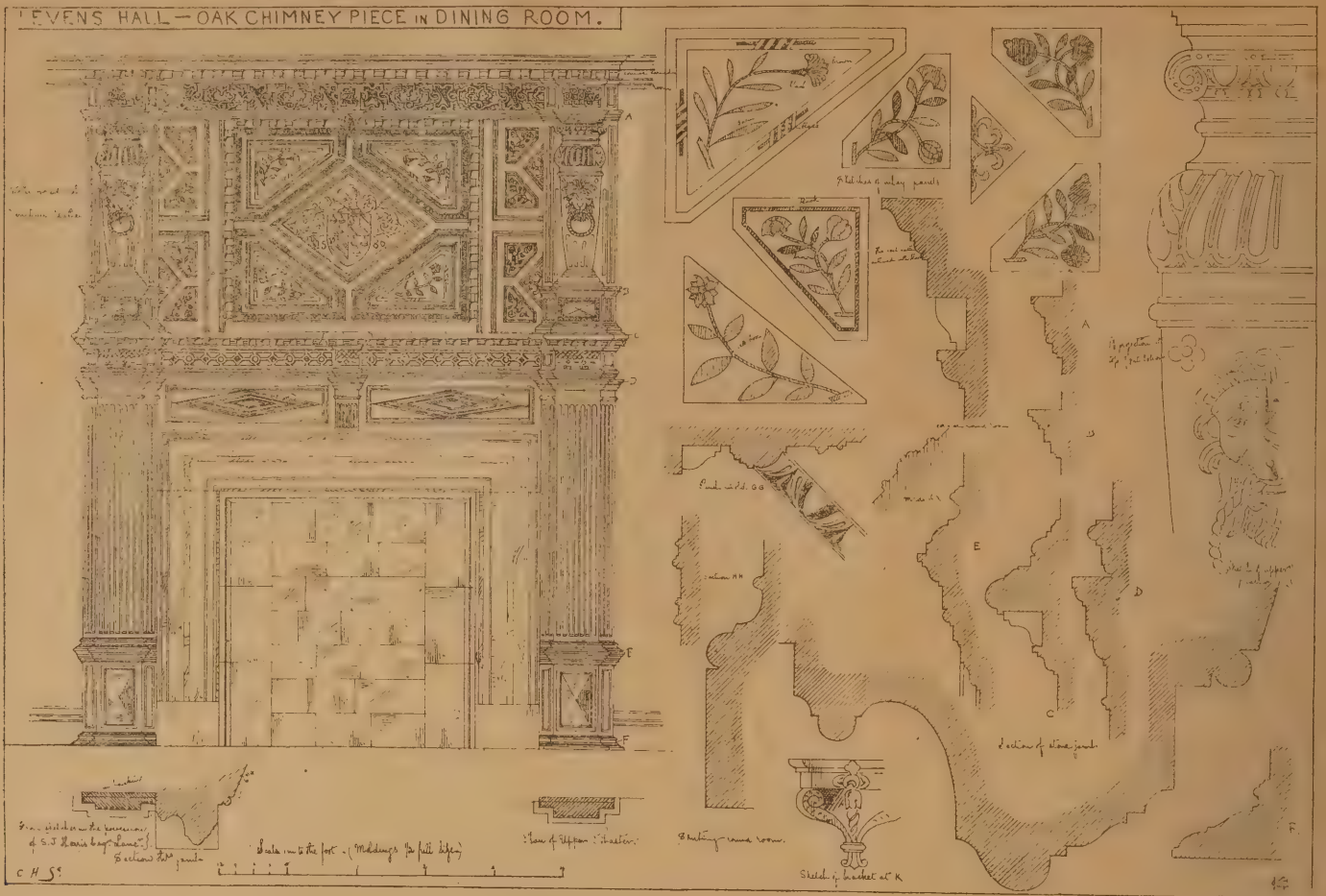
continued to be either sculptured or engraved on tombs till the seventeenth century, although other devices were adopted as well. Immediately after the Gothic age of chivalry more solemn emblems were employed. Skeletons in shrouds began to be used in the fifteenth century, and these were followed by corpses (or portraits of them) in shrouds, with the head bound up and the feet tied. Sometimes images of children were placed at the feet, and cherubims at the corners of the tomb. These devices, of unpleasing character, were generally employed for deceased ecclesiastics, and one such, to Dr. Donne, is to be found in St. Paul's Cathedral—relic from



LEVENS HALL. THE LITTLE DRAWING ROOM. FROM A PHOTOGRAPH BY F. TURNER, MORECAMBE.

main body of the building by iron rails, and are entered by doors from the side aisles. This practice did not come into vogue until the fifteenth century. Figures in half-relief or ordinary sculpture multiplied so much in course of time that a less elaborate mode came to be adopted. This was by simply engraving or incising the effigy on slabs of stone or on plates of brass. One of the earliest of these is that of Jocelin, Bishop of Wales, placed by himself during his lifetime in his titular Cathedral in 1242. The earliest existing specimen of the sort is that of Sir Roger de Trumpington, who accompanied Prince Edward in the Holy Wars, and who is represented with his legs crossed. It is preserved in the Church of Pebmarsh, near Halstead, in Essex. Recumbent effigies

the old Cathedral. The antiquary is often guided as to the status of the individual by the situation in which the tomb is found. The most important sepulchres were those of saints, who, on account of the veneration in which they were held, were enshrined, the shrines being generally on the east of the altar, though there were many in other convenient parts of the Church. According to his sanctity, so were the remains elevated above the ground. The bodies of unsainted men, yet of great piety, were placed on a level with the surface of the earth. The coffins of saints of the second class rested on the flooring of the edifice, whilst those of martyrs were elevated. Effigies carved in wood were often placed over the shrine to excite devotion. Monuments built in the



WITH THE A.A. IN LANCASHIRE. MEASURED AND DRAWN BY E. P. MILNER FOR THE JOHN O' GAUNT SKETCH BOOK.

walls are chiefly those of the founders of chapels. Tablets or figures against the walls did not come into use until the time of the Reformation. The proper burial place of the founders of churches and chapels was the porch, and it was the custom of worshippers on entering to pray for them as they crossed the threshold. Thus Leofric, Earl of Mercia, and his wife, the celebrated Lady Godiva, were interred in the porch of the Abbey Church, Coventry, which they founded. The heads of religious houses were buried in their chapter houses or cloisters, and rectors or vicars in the vicinity of the altar or chancel of the Church they belonged to. Lords of the manor were also interred in the chancel, sometimes within the rails. The guides to the date of tombs are, of course, the inscriptions. But, as many of these afford no clue as to when they were cut, the following, in conjunction with accessory facts, may be of use. During the first twelve centuries all epitaphs were inscribed in Latin, and the first are those of Romanised Britons in Cornwall and Wales. These are written in capital letters, but in some cases a small hand was introduced in the seventh century. Lombardic capitals came to be employed in the thirteenth century, when epitaphs in the French language also began to appear. These continued to be used until the fourteenth century, generally in German text. Since that time vernacular English and Roman print have been ordinarily employed, though the clergy and the learned have ever preferred to retain the Latin tongue for epitaphs. We question whether, when the history of the Victorian era comes to be written, any particular style or form of churchyard decoration will be associated with that period, for now fancy runs riot in the matter of design for memorials of the dead, from the richly-carved sarcophagus to the plain headstone with its bald narrative. Anyway, enough has been dealt with in the preceding lines to demonstrate

that the study of the Effigy of the Tomb is anything but an uninteresting or dry branch of lore to pursue.

RESTORATION OF SALISBURY CATHEDRAL.

THE work of restoring the tower and spire of Salisbury Cathedral is proceeding rapidly, and it is hoped that by the end of the present year the whole work will have been completed. Sir Arthur Blomfield, the Architect who has had charge of the work, has just furnished the Dean and Chapter and the Committee responsible for the restoration with a report of what has been accomplished under his direction. He says that the tower has been strengthened in every way possible, the shattered stones being replaced by others of a more durable nature, and the foundations carefully examined and restored. His examination of the building revealed a lamentable state of things, and it was evident that, if it were allowed to exist, a disaster of some considerable proportion would ultimately take place. He has also reported that the turret at the north-west of the Cathedral was in such a bad state that it was necessary to take it down. It has now been rebuilt. The work was one of great difficulty, but it has been accomplished in the most workmanlike and satisfactory manner. Every stone that could be re-used appears again in its proper place, only new stones being introduced wherever the original stonework has been crushed or broken, or are such small stones as to be unsafe. The Very Rev. G. D. Boyle, the Dean of Salisbury, has informed the Committee that the tower and spire has been secured as far as human means go for future generations. The cost of the work will be £15,000, of which the sum of £12,000 has been paid or promised. Considering the national interest evinced in the Cathedral and spire, the Dean and Chapter felt that the time had come when they could reasonably appeal

to the public to assist in restoring the spire and tower of the Cathedral, and thus remove the burden which pressed heavily on those who were the proper custodians of the Cathedral. Her Majesty the Queen has forwarded a communication to the Dean expressing sympathy with the objects of the Committee, and enclosing a cheque for £100. The Committee consists of the Dean of Salisbury, Lord Nelson, Lord Radnor, Lord Pembroke and Montgomery, Mr. Edward H. Hulse (late member for Salisbury City), and Mr. Arthur Whitehead (the Mayor of Salisbury). Among those who have subscribed liberally towards the fund for the completion of the work are the Marquis of Salisbury, the Bishop and the Dean of Salisbury, the Rev. Chancellor Howard, the Hon. and Rev. Canon Gordon, the Rev. Sub-Dean Bourne, Lady Hulse, Mr. W. McCalmont, Lord Wimborne, the Earl of Eldon, the Hon. W. F. D. Smith, M.P., Mr. A. Morrison, the Marquis of Lansdowne, Sir A. Neeld, Mr. G. Fuller (late M.P. for the Westbury Division of Wiltshire), Viscount Portman, the Hon. Percy Wyndham (High Sheriff, Wiltshire), the Earl of Radnor, Mr. F. Macdonald, and Mr. Shaw Stewart.

A serious subsidence recently occurred in the sanctuary of Dane Bridge Parish Church, Northwich. The floor was supported by brick arches. One of these gave way, owing to the sinking of the foundations, caused, it is said, by brine pumping, leaving a hole some 6ft. long and nearly 4ft. wide. The porch walls show large fissures, and the whole fabric has suffered considerably.

At the pretty and historic Church of St. Chad's, Over, near Northwich, the foundation stone was laid last week of two new vestries and an organ transept, which are being built at a cost of nearly £1000. This is the first time since the year 1543 that the fabric of this ancient Church, which dates from the reign of Edward I., has been substantially enlarged. For more than 350 years its walls have stood very much as they are to-day.

THE ARCHITECTURAL ASSOCIATION TOUR.

LANCASTER AND THE NEIGHBOURHOOD.

(Continued from page 5.)

LEAVING Borwick Hall and again taking to the high road, after a few miles ride Beetham is reached. A little to the left we find the Church, much of which was restored some few years since, but the tower was left intact, and presents an uncommon appearance, the upper portion being corbelled out about a foot. The interior of the Church contains some very good modern work; the tower screen especially excites our admiration as a piece of interesting detail. About a mile from the Church is Beetham Old Hall, very picturesque in its present ruinous state, but of little architectural importance.

From Beetham the road continues through charming scenery to Milnethorpe, a place we longed to sketch, though time did not permit. On the green in the centre of the village stands the old market cross, which, with the Church and cottages, form a most picturesque group. After Milnethorpe a couple of miles brings us to Levens Hall, the most northern point of the tour. Levens Hall is situate on the banks of the river Kent. The approach from the beautiful river is all that could be desired. Immediately to the right of the principal entrance is the "Pele" Tower, the usual fortified tower of houses in the Border counties; and around the tower, in sombre tints of grey, clusters the old Elizabethan Manor House. We enter into a large hall, panelled throughout with an intricate frieze of plaster work, here and there relieved with



LEVENS HALL, THE DRAWING ROOM. FROM A PHOTOGRAPH BY F. TURNER, MORECAMBE.

colour, merging into an elaborate plaster ceiling, among the plaster ornamentation the Tudor badge of a rose and crown, the red and white roses of York and Lancaster, the fleur-de-lis, bugle and deer badges of the Bellinghams, frequently appear. Passing to the dining room, the effect of the Spanish leather hangings with background of burnished gold is most brilliant. The drawing room, also, has

some very good diamond pattern oak panelling. From the hall we ascend the oak staircase of the seventeenth century to the upper floors.

In Norman times Levens formed part of the possessions of Tosti, Earl of Northumberland, and towards the end of the fifteenth century it passed by purchase into the Bellingham family, and after remaining in their possession for some two centuries it was purchased by Colonel James Grahme, in the possession of whose descendants it has continued ever since. Amongst the many owners of Levens, two only need be considered here. The first, Sir James Bellingham, by whom the house was altered from a grim Pele tower to a stately Elizabethan mansion. The greater part of these alterations took place between 1586 and 1595. Thus, on the carved oak chimney-piece of the dining-room and elsewhere about the house, we see carved his initials, I.B., and the date, 1586. Nearly the whole of the windows throughout the building were inserted about this time. Colonel Grahme, "a man in the thick of every Jacobite rising of his day," who came into the property about 1690, also made many alterations, although to him more especially the laying out of the gardens is due. In politics he was a staunch Jacobite, and was privy purse to King James II., but on the misfortunes of his royal master he left the Court and retired to the seclusion of Levens. Since Colonel Grahme's time the additions to the building comprise a suite of bedrooms over the kitchens, and a long range of buildings at right angles to these, the latest of all being the tower at the angle, which forms so prominent a feature in all views of the Hall from the gardens.

Of these gardens it remains in conclusion to speak, forming as they do the chief work of Colonel Grahme. We have here a wonderfully perfect example of garden design in the latter part of the seventeenth century, though, perhaps, at first sight the fantastic forms of the Topiary work, hitherto unknown in England, appear a little overdone. And what an immense variety of forms in yew lie scattered at intervals before us; here a lion and crown, there an archway with its little tuft of yew acting as a keystone, now a huge umbrella—as that in our sketch—a lion, or a colossal helmet, whilst intermingled with, and forming a delightful contrast to the deep green of the yews, is a glorious display of varied coloured plants and gay flowers.

The gardens were designed and laid out by Beaumont, who, as a pupil of Le Notre, the great French gardener, was responsible for much of the garden work at Hampton Court. On the downfall of the King, Beaumont, whom Colonel Grahme had known at Court, was offered



IN THE GARDENS AT LEVENS HALL. FROM A PHOTOGRAPH BY F. TURNER, MORECAMBE.

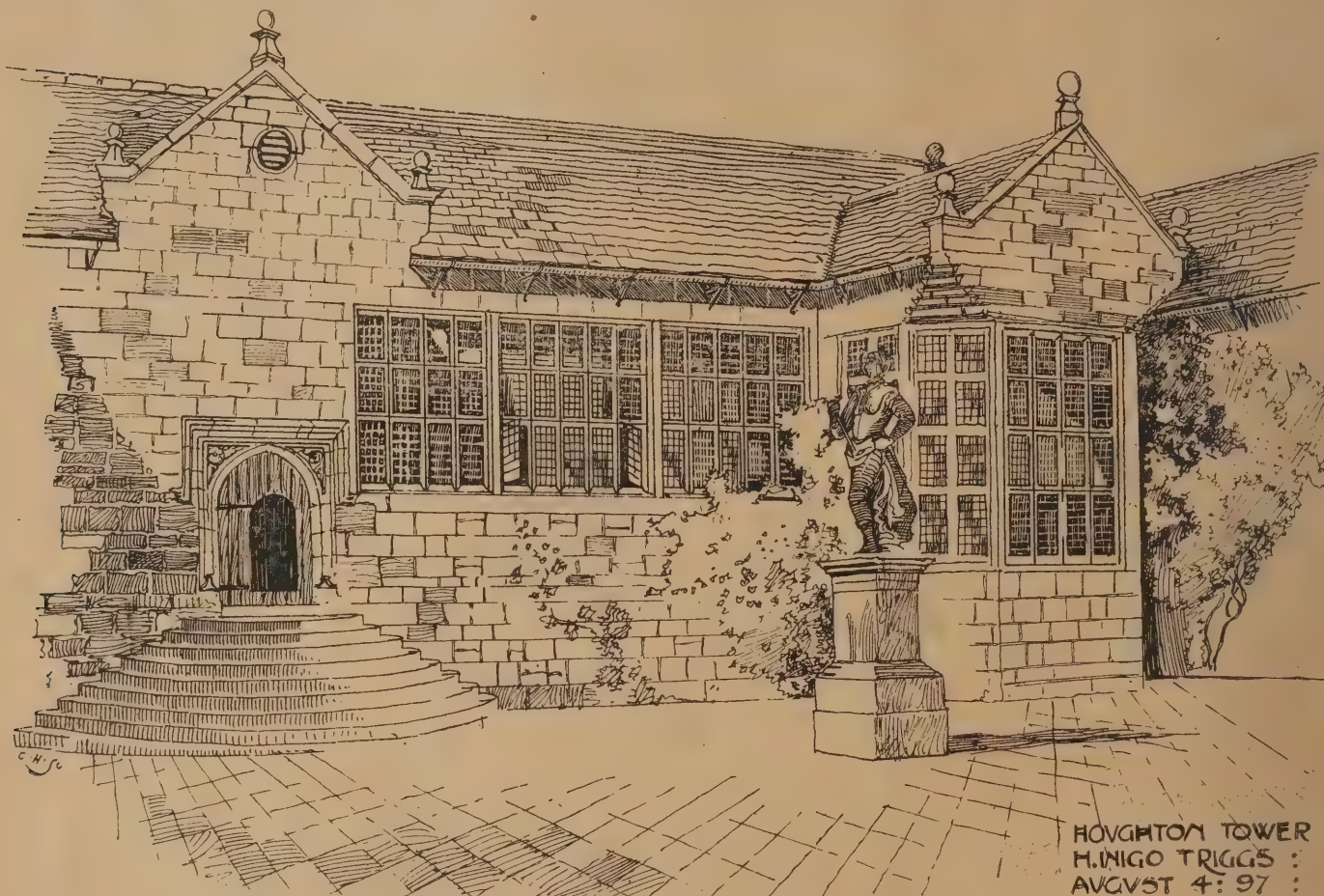
employment at Levens. In the hall is Beaumont's portrait, who is thereon described as "gardener to King James II. and to Colonel James Grahme," and "to have laid out the gardens at Hampton Court Palace and at Levens." Along the principal walk we pass a large yew arbour shaped like a judge's wig, whilst further on, past an old sun-dial, we come to the large square bowling-green, with its thick beech hedges. In some old letters written at the latter part of the seventeenth century, allusion is made to the lime trees here, which appear to have been the first of their kind planted in England, introduced as they were from Holland by William III.

We are not permitted to leave Levens without first partaking of its ale, the manufacture of which is a family secret, and like the ale, of long standing; and whilst drinking, to join

to have taken the place of a former similar erection; much of the apparent black oak carving is of plaster work. The screen to the Great Hall at Penshurst, visited on the last A.A. excursion, is similar in this respect. The Domestic Chapel is now used as a sitting-room, but the ancient Piscina can still be discerned in the south wall.

The building was once quadrangular and moated; the evidence is clear that the kitchen and batteries were originally at the north end of the great hall. The high table was in a recess at the south end, with a fine cove and moulded rib over, the head and side posts of which remain. The two end doors leading off to the family apartments with finely-carved lintels are also left intact as well as the bay, which on plan forms part of a decagon. The Hall has at more than one period been used as

Tower, "the heart of Lancashire," standing out boldly against the sky on the top of a lofty hill. After a long and tedious ascent we pause under the entrance archway to drink in to its full the wonderful view opening out before us. Almost at our feet lies the great town of Preston, with its hundreds of tall chimneys emitting dark masses of smoke. The tower, which at first sight has more the appearance of a village, roughly speaking takes the form of the letter H, the bar marking the division of its two courtyards. The entrances to each court are in a direct line. On the south-east side is the main entrance, looking through which a delightful glimpse is obtained of the two courts. Well in front of the main gateway huge Jacobean gateposts stand out, rising from a low wall which divides the park from the forecourt.



HOUGHTON TOWER
H. INIGO TRIGGS :
AUGUST 4: 97 :

WITH THE A. A. IN LANCASHIRE.

in the time-honoured toast of "Luck to Levens whilst the Kent flows."

We now take our departure to a district some thirty miles south of Lancaster. The country round Preston is of a much busier type, the huge chimneys which appear on all sides largely detract from the beauties of an otherwise very pretty country. The road from Preston to Samlesbury Hall is very uninteresting, and on a hot day very tiring, and it is with much gratification that we at last see the old half-timbered building adjoining the high road, surrounded by a little copse which almost threatens to hide it from view. The entrance front, of which we publish a sketch, with the exception of a stone base, is entirely executed in half timber; the spaces between the upright beams and cross pieces are filled in with quatrefoils of wood, the centre portion of which is plaster. The porch, which looks like a modern addition, gives access to the Hall with a fine, though rudely carved staircase—a later addition. To the right a passage leads to the most interesting room of the house—the great hall, probably erected at the end of the fourteenth century; the roof has some immense oak timbers, and at one end is the minstrel gallery, which appears

an inn, doubtless owing to its proximity to the high road. In the time of Henry VIII. Samlesbury belonged to the Southworth family, whose name and arms are carved on the fire-place in the south-east wing, dated 1545, afterwards to the Braddylls, the Coopers, and to the present family of Harrisons. The Hall is now occupied by the Mayor of Blackburn.

From Samlesbury half an hour's run brings us to Blackburn, and from here we proceed to Houghton Tower, stopping on our way to see Livesay Hall, now partly occupied as a farmhouse, the unoccupied portion having been allowed to go terribly to ruin. We take some measurements of the remains of what was formerly a fine staircase. From the date panels the house appears to have been built in three different periods; the centre part bears the date 1608, the east wing 1666, and the west wing 1689. It was built by members of the Livesay family, from whom it takes its name, and was occupied by their descendants until the middle of the eighteenth century, when it was allowed to fall into its present state of decay.

A ride of some few miles brings us to the *mîe se de résistance* of the whole tour. A turn in the road reveals to our view Houghton

The main gateway is under a square battlemented tower of two stages, with a flank tower on each side, connected by walls. To the right on entering is a three-story building, part of which is now undergoing restoration; to the left are stables and offices. The court is divided by a quaint Jacobean terrace, with gate piers and fine wrought-iron gate, and a flight of steps admits to the second tower on the site of a former tall gatehouse, which was accidentally blown up during the Civil War, when through the inner gateway, immediately on Houghton underwent a long siege. Passing the left hand is the great hall, the entrance to which is through a low Tudor archway. Nearly the whole of this wall is taken up by a long window lighting the great hall and a large bay at the end. A curious feature, and one which occurs all over the building, is the manner in which the upper portions of the bay windows are corbelled out. We purpose giving next week some measured drawings of this portion of the building. In the centre of the courtyard is a lead statue of William III., brought from the neighbouring hall of Walton-le-dale, pulled down in 1834.

The hall is entered from the north side of the inner court by a flight of semi-circular

steps, a panelled oak screen runs along the width of the hall at the entrance, and above it is the Minstrel's Gallery. There is in this hall much old furniture of great interest. From the principal entrance the King's Staircase leads to the King's Reception Room, on the upper floor—a fine room, oak panelled—and a chamber known as the Guinea Room, from a number of gilt guineas decorating each corner of the panels of the wainscotting.

The general style of Houghton is severe, mouldings being sparingly used. There is little carving, the stone used being a very hard one, quarried from the hill on which the castle stands. The detail throughout is very well proportioned and simple, and it is very gratifying to note the spirit in which the restorations are being carried out.

The De Houghton family is of very ancient origin. The house, old as it is, is comparatively modern when we consider that the family has lived in this part of Lancashire since before the Norman era. Tradition says that their name came to them from the hill on which the Tower is situate. The founder of the Tower was Thomas Houghton, who succeeded his father in 1558. He changed the position of the old Manor House in building the present Tower. Perhaps the chief event in the history of Houghton is the visit of James I., in August, 1617. Accounts of the visit which are handed down to us show it to have been a very expensive matter for the then owner, Richard Houghton.

Considerable additions to the Tower buildings were made by Sir Charles Houghton in the days of William III. Soon after the death of Sir Charles the family deserted the Tower, and the buildings gradually fell into decay. Sir Henry Houghton, who came into the estates in 1862, did much to restore Houghton Tower. He died in 1876, and the work was carried on by Sir Charles de Houghton, under Messrs. Paley and Austin. At the present time the restorations are being carried out by Mr. Andrew Oliver for Sir James de Houghton.

Houghton Tower is the scene of many incidents depicted in Harrison Ainsworth's "Lancashire Witches," and is also the scene of Charles Dickens's "George Silverman's Explanation."

Furness Abbey, some distance from Lancaster, near the Town of Barrow, was the place next visited. The Abbey was originally founded in 1124 by Stephen, afterwards King of England, and, rapidly increasing in wealth, was worth at the dissolution £800 a year. The Abbey Church originally consisted of a short presbytery without aisles, central tower, north and south transepts, with eastern chapels, nave, and aisles. The presbytery was almost entirely rebuilt at the beginning of the fifteenth century. Of the nave little else remains but the stumps of the piers and the greater part of the outer wall of the south aisle. Nearly every period of English Gothic Architecture is represented, the entrance gateway and entire Church being of the transitional period, about 1160; the chapter house and fraternity about 1230; the Abbot's dwellings and gateway chapel about 1300; and the choir, west tower, sacristy, transept windows, and choir sedilia date from the beginning of the fifteenth century.

In the evening of Friday, according to the custom of all former excursions, a farewell dinner was held at the County Hotel, Lancaster, the headquarters of the tour.

THE workmen who are at present making alterations on the fine mansion house of Mellerstain, one day recently had to break through a partition wall, when they came upon a wine cellar, the existence of which was unknown, and which for some reason or other had been built up.

A PETITION having been presented to the Glasgow Dean of Guild Court to have the spire of St. Enoch's Church, Glasgow, which was struck by lightning, examined by an expert builder, an inspection of the Church was made recently by Mr. Whyte, the Master of Works, and Mr. George Barlas. Mr. Whyte is of opinion that 20ft. or 30ft. of the spire will have to be taken down.



SAMSBURY HALL
AVG 4.97 H. INCO (RAGS)

WITH THE A. A. IN LANCASHIRE.

GLASTONBURY ABBEY.

COMPARATIVELY few people visit Wells

Cathedral, one of the finest of our great mother Churches, because of its inaccessibility, and still fewer the ruined Abbey of Glastonbury, so bound up with our national history. The recent pilgrimage of the Fathers of the Lambeth Conference to this ruined shrine will recall attention to its chequered history. Three fragments of that once great building stand within forty acres of ground—a remnant of the Lady Chapel, or, as it used to be called in the fifteenth century, the Chapel of St. Joseph of Arimathea, who, tradition says, preached the Gospel here; the ruins of the great Church; and the great kitchen of the Abbots. Malmesbury claims King Arthur as the first benefactor, but, however that may be, there is a distinct record of a grant of five hides of land at Inysvitrin, given in 601 by Gwrgan, King of Dyfuaint. In the next century King Ina gave a grant of land at Brent Knole and Merch, and gifts from that time were continuous, and St. Dunstan's great influence as Abbot eventually

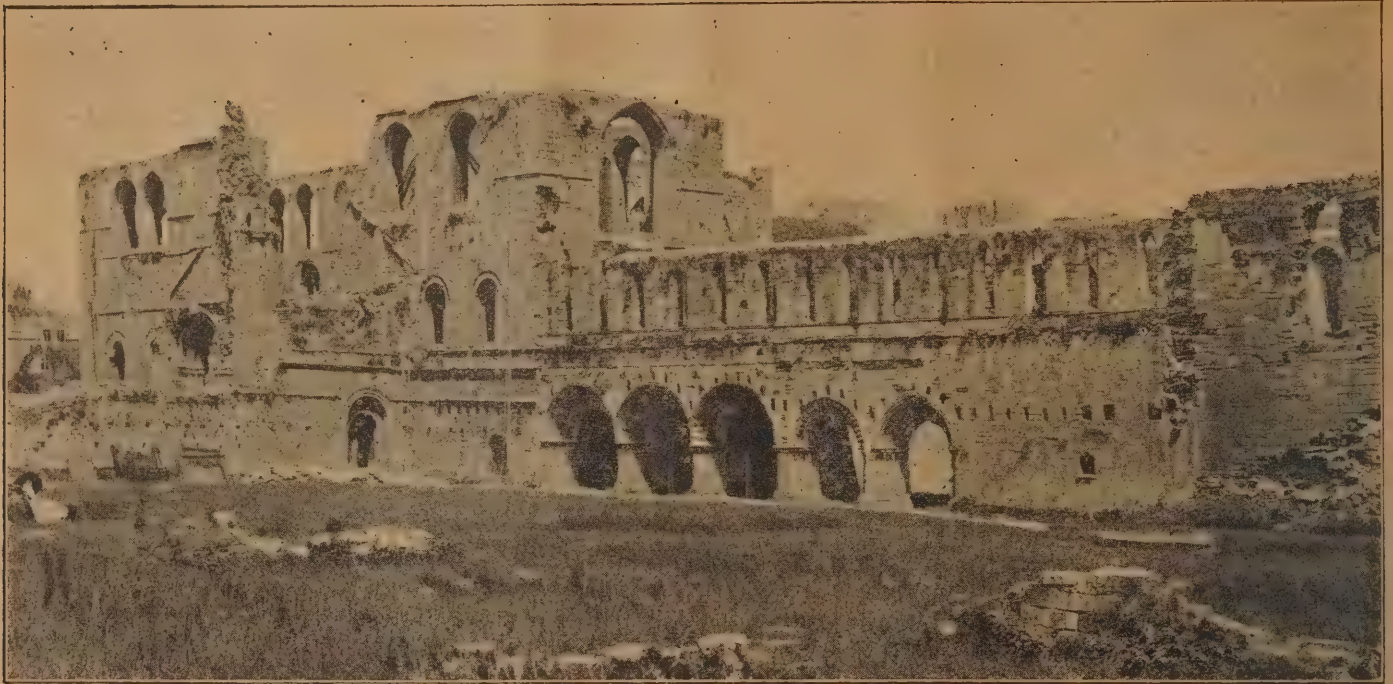
DREW ATTENTION TO THE ABBEY.

The two Royal Eadmonds and the great Eadgar were among the many people of note buried in the Church, and Archbishops and other distinguished persons in early days frequently visited the Abbey, though we have little information as to the monastic buildings

during the English period, but the Conquest brought over great Church builders, such as Thurstan, the first Abbot, who apparently pulled down Ina's Church and began a larger one; while in the twelfth century, Herlewin, in turn, pulled down that Church and erected another; while during the time Henry of Blois, a nephew of Henry I., was Abbot, the conventional chambers were rebuilt, and a Royal palace, a chapter house and cloister, an infirmary with chapel, and an external gateway, were added. In 1184 the whole monastery was destroyed by fire, but the damage done was at once repaired by Henry II., who held the temporalities, and Ralf FitzStephen commenced the work of restoration. The Lady Chapel—the charming fragment of which still remains—was consecrated in July, 1186, but the great Church was not finished till the time of Abbot Geoffrey de Fromond, about 1315. Then, when all was finished, the remains of

THE GREAT AND CHERISHED HEROES,

such as King Eadmund I., King Arthur, Ironside, and Eadgar, were deposited there. An interesting article in the Guardian says: "Joseph of Arimathea was said to be buried at the west, in the passage or ante-chapel leading to the Lady Chapel." The Abbey estates comprised at one time nearly an eighth of the whole county of Somerset, including more than forty parishes, of which East Brent, famous in our own times, was one. In Wiltshire there were sixteen manors, in



WITH THE A. A. IN LANCASHIRE. FURNESS ABBEY. FROM A PHOTOGRAPH BY F. TURNER, MORECAMBE.

Dorset six, and in Devonshire and Berkshire one each, besides revenues derived from pensions from eighteen Churches or their manors. At the time of the Domesday survey a twelfth of the population of the county were tenants or serfs of the Abbey. There appear to have been from fifty to a hundred monks, besides villein tenants, cottagers, serfs, and beggars innumerable. In 1349 the Black Death reduced the monks from eighty to thirty-four, and in 1524 we find forty-seven monks requesting Cardinal Wolsey to confirm Richard Whiting as Abbot, and at the dissolution in 1539 there were forty-nine monks. The increase of luxury before the Dissolution is shown by the fact that the butlership, which had become hereditary, was vested in a girl who became the ward of the Prior, and the Abbot, who lived at some of the splendid manor houses in the neighbourhood, was served at table by more than 300 attendants, many the sons of gentlemen, and that 500 horses were in the stables, while the Almonry was crowded with beggars. As modern prelates from all parts of the world walk in the streets of Glastonbury, they will note with interest the remains of the domestic architecture of the fifteenth and sixteenth centuries; will lament the loss of the library, which was the admiration of the antiquarian Leland, and will reflect possibly on the vanishing character of the greatest works alike of Art and charity.

THE members of the British Archæological Association have decided to visit North Wales at the end of the present month.

It is stated that Muckross Estate, Killarney, has been selected as a site for a Royal residence, and that a substantial sum has been offered for the property.

MR. W. H. BARBER, of Henley-on-Thames, has offered to present to the City of Birmingham a statue of the Queen, by Mr. Thomas Brock, costing £1000. The offer has been accepted by the City Council, and a site for the statue is to be selected by the Public Works Committee.

WE understand that the memorial bust of the late Lord Derby, which Earl Stanhope has just offered to the Select Committee on the House of Lords offices, will be placed in one of the apartments of the library. In order to do this certain alterations will be necessary, and it is improbable therefore that the bust will be placed in position until next Session. The memorial will be mounted in conformity with those of the Queen, Lord Brougham, and Lord Truro.

SWANSEA NEW PARISH CHURCH.

THE nave of St. Mary's Parish Church, Swansea, has been opened. The old nave and the aisles were built in 1745, but the chancel and the Herbert Chapel are parts of the original Early English edifice, most of which fell to the ground in 1739, while it was undergoing repair. While the building, which is now in course of reconstruction was, from an Architectural point of view, of very ordinary description, there are parts of its interior of great interest. The chapel contains the handsome tomb of Sir Matthew Cradock and his wife, Lady Katherine Gordon. This knight was chancellor of Glamorgan, and steward of Gower and Kilvey, and his lady was the widow of Perkin Warbeck, the Pretender, who was hanged at Tyburn in the reign of Henry VII. In the north wall of the chancel is a fine memorial brass, which was once the upper portion of an altar tomb erected to the memory of Sir Hugh Johnys, his wife (Dame Maud), and their five sons and four daughters. Sir Hugh, who was a great-grandson of Sir Roger Vaughan, fought in the Crusades, and was knighted at the Holy Sepulchre in 1441. The Church also contains a valuable altar piece, in the shape of a painting of the Madonna and Child, which is attributed to Sassoferrato, an Artist, who died in 1598. Sir Arthur Blomfield has prepared plans which it will cost at least £25,000 to realise. The nave has cost £14,000. The new Church is built in the Early-pointed style, faced externally with local stone, with Bath-stone dressings, and internally entirely with Bath stone. - It has a lofty nave arcade, with attached stone shafts carried up to the roof, and supporting the principal rafters. The whole of the roofs are constructed of English oak, with some chestnut, covered with the best Westmoreland slates. The internal dimensions of the new nave and aisles are as follows:—Length, 111ft. 6in.; width, 66ft.; height to wall-plate, 40ft.; and to ridge, 62ft. This is an addition upon the old nave of 33ft. in length, 6ft. in width, and 22ft. in height. The chancel will be built in the same style as the nave, with spacious vestries and a lofty tower, 30ft. higher, in which will be rebuilt the existing corbels under the parapet of the present one. The stained-glass window in the chancel, and the canopy and effigy will also be preserved and re-erected. It is also intended to restore the Herbert Chapel; the arch leading from this to the new north aisle is the ancient one rebuilt. The floor of the new nave has been laid 2ft. 6in. above the old floor, and the

ground outside in the yard has been raised accordingly. This has effected a great improvement both in and outside the Church. Also the very dull and heavy high wall enclosing the north-east corner of the yard in Calvert Street has been lowered four or five feet, and the ground sloped down. This throws open the Church much more to public view, and has greatly improved the locality. The principal carving, which has been done by Nicholls, of Lambeth, consists of our Lord in majesty on the vesica over the south porch door, and of our Lord and the four Evangelists over the west porch. Mr. Nicholls has also carved the foliage round the handsome pulpit presented by the lay rector, Sir R. A. Morris, in memory of his late father and mother. The Church is lighted with gas incandescents, and the fittings have been supplied by Mr. Legg, of Nelson Street. The Church is seated with chairs.

ACCORDING to the designs of Mr. Charles Bell, of Salters' Hall Court, a block of shops and warehouses is now in course of erection at 178 and 182, Goswell Road.

MR. J. RANDALL VINING, of 89, Chancery Lane, has been engaged as the Architect for the rebuilding of premises at 99, 4, and 88, High Street, Marylebone, at a respective cost of £1743, £1695, and £1993.

THE floating stone is one of the wonders of Corea that travellers have spoken much and often about. The stone is of great bulk, and shaped like an irregular cube. To all appearance it is resting on the ground, and is perfectly free from support on any side. If two men, standing at opposite ends of it, hold each the opposite end of a thread, they will be able to pass the thread under the stone without encountering any obstacle. The natives consider it one of the greatest wonders of their land, and have erected a temple in its honour, known as the Fon Shih Miao.

THE Liverpool Corporation having municipalised the tramways of that city, to take effect on Sept. 1st, has resolved to equip a line of tramway, as an experiment, to be worked by the trolley or overhead system of electric propulsion, at a cost not exceeding £50,000. The new line will start from the centre of the city, and run south, being about four miles long. The cars will closely resemble American, all on one floor, with a portion open at one end for smokers and outside passengers. The iron columns to carry the electric current will be utilised for illuminating the streets by electricity.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

August 18th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

Yet another cloud has appeared upon the artistic horizon. There is hardly a studio in which some project for a Jubilee picture is not

says:—"A serious loss threatens the inhabitants of Hampstead. The speculative builder has now got his eye on Church Row, and is anxious to destroy what is undoubtedly the most beautiful old street to be found in London or the neighbourhood. There are, I believe, three schemes in contemplation. Two of these deal with buildings on the north side; the third (and most disastrous) proposes to fill the space occupied by No. 16 and the intervening area up to the churchyard with "mansions." Church Row, with the exception of the building at the corner next Heath Street, is a perfect example of eighteenth century street Architecture, and there can be no need to dwell on its increasing value to all intelligent people, in view of the character of recent building in Fognal and elsewhere in Hampstead. The point, however, to which attention should be drawn is, that, while the speculative builder may or may not be enriching himself by his abominable buildings, the value of residential property in Hampstead is being steadily reduced by the persistent destruction of all that makes the place attractive. To the speculative builder, provided he floats his speculation, this is immaterial. The State can do nothing in such cases, even if its interference would be desirable, and public opinion is unfortunately

a Jesse window with kneeling figures of English Sovereigns at the foot, one of the figures being that of Queen Victoria.

At Bebington the venerable Church, which contains some of the most ancient and beautiful Architectural work in Wirral, ranging from the earliest to the latest dates of English building, is now undergoing a complete renovation, which is much needed. Some previous restorations made in 1845 not being of a material consistent with present ideas, though well designed in themselves, will be swept away, and a series of decorative wooden arches substituted. The ancient roofs of the Church and aisles are to be covered with pitch-pine boards instead of the original plaster, and decorated with ornamental details. The walls of the interior of the nave will be stripped of plastering, and the rude rubble stonework neatly pointed, with mortar joints, which will afford a striking contrast to the refined and highly-finished work in the chancel. These alterations will completely transform the appearance of the ancient building, and we cannot help regretting that its antique appearance will be to some extent lost, and new work will not be identical with any old that has hitherto existed.



LIVESAY MAIL
H. INIGO TRIGGS AUG 97.

WITH THE A. A. IN LANCASHIRE. SKETCHED BY H. I. TRIGGS.

on the easel, and the Royal Academy next year promises to be one continuous array of processions. And here, within a month of the event, every music-hall and Art gallery, whether in London or the country, offers a panorama of the event which must nauseate the public palate as much as it jades the eye. Jubilee pictures, unless they are something very exceptional, will be as great a failure as Jubilee seats.

SOME indignation has been caused at Hampstead by the news that there are two or three schemes in existence, and on the eve of being carried out, for the destruction of the fine old street known as Church Row, which is undoubtedly the most beautiful old street to be found in London or neighbourhood—a perfect example of eighteenth century street Architecture. The object of the contemplated demolition of some of the fine old houses there is said to be to erect flats.

MR. REGINALD BLOMFIELD, writing to a contemporary on the subject of Church Row,

not sufficiently advanced, or rather is too loose, to offer any effective check. The only remedy is for those immediately interested to combine in an endeavour to preserve buildings which can never be replaced."

IN the beautiful Lady Chapel of Winchester Cathedral, the south window, in memory of Anthony Wilson Thorold, the eighty-fourth bishop of the diocese, was unveiled recently by the Dean of Winchester. Mr. C. E. Kempe has been very happy in depicting scenes of our Lord's life in connection with the Blessed Virgin, while there are also representations—the old glass being worked in wherever possible—of SS. Jerome, Ambrose, Gregory, Augustine, Elizabeth, Margaret, Birinus, Honorius, Swithin, and Alphege. Above these are St. Anthony, the Venerable Bede, St. Christopher Kynegils (the first Christian King of Wessex), Bishop Fox, Henry VII., and Prince Arthur. The other windows are to be filled with stained glass. The east window will be one of the city's permanent memorials of the Jubilee, and Mr. Kempe has designed for this purpose

The very inadequate courts in the Old Bailey have long been doomed, but the day when they will be replaced by a building which shall be worthy of the leading city of the Empire seems as far off as ever. The Central Criminal Court ought to be architecturally, as it has long been from a legal point of view, an example to the whole nation. As it is, almost any provincial municipal town possesses Courts better designed and equipped. Some years ago it was decided to build a new Court on the Embankment, but that plan was abandoned in favour of erecting a new structure on the present historic site. The judges, and particularly Mr. Justice Wills and Mr. Justice Grantham, have objected to certain plans put before them by the City Lands Committee, on which it was proposed to expend something near £200,000. The objection of the judges to the scheme is understood to be prompted by the awkwardness of approach and the confined area of the existing site. There is a proposal to use the present Christ's Hospital for the purpose, and more may be heard of this on the removal of the scholars to the new premises.

GLASGOW has always been more Frenchified in matters of Art than any other city in Great Britain; and it is not surprising therefore to hear that the Architects of the Art Galleries, which are approaching completion, are about to adopt the same method as was done in the case of the *Hôtel de Ville*, Paris, and employ a master sculptor to model the designs for all the decorations and be responsible for their proper execution, reserving only a few special points for his own personal execution. Mr. George Frampton has been selected as master sculptor, and he is given a free hand as to his subordinates—as large a proportion as possible being Glasgow craftsmen, provided that they are competent.

MR. FRANK DICKSEE, R.A., who is to illustrate the "Queen's Letter to Her People," is one of the younger of the Academicians, who received the distinction of being elected an Associate of the Royal Academy when he was but twenty-eight. The first picture he exhibited at Burlington House was a Scriptural subject, but it was his "Harmony" which brought him into prominence. This work was purchased by the Chantrey Bequest in 1877 for £367 10s. As an illustrator Mr. Dicksee has been very successful, and he has also accomplished designs for stained glass. Of late years he has been what might be described as a painter of sentiment; but this spring his large canvas for Burlington House showed him working on classical lines, and his "Dawn" held a place often previously occupied by the late Lord Leighton's pictures.

How much it may be owing to the recent rapid growth of technical schools it is impossible to say; but there can be no question that the Art of wood-carving is one which is growing in popularity with women workers. Until somewhat recently easy opportunity was not offered for them to acquire this Art, although as long ago as 1879 a school of wood-carving for women was founded; and even before that time Mr. W. G. Rogers, a well-known wood-carver, gave lessons to ladies; but in those days women had not begun to study the possibilities of wood-carving as anything but a pleasant employment for spare time. To-day they make it both an occupation and recreation.

AMONG the newly discovered marine resorts on the Norfolk coast, Mundesley looms large. As an instance, the current number of the *Quiver* gives a picture of Mundesley Church, which it describes as "Doomed to the Sea." The writer remarks: "On the edge of a rapidly wasting cliff at Mundesley, overlooking the North Sea, a half-ruined Church stands, almost roofless, except for a small portion of the nave where service is still regularly held. Many years ago these few crumbling walls formed part of a fair Church in a populous district, many acres of which are now under the waves. The country inland has been in great part deserted, and but few hands are now clasped in prayer in the old Church, and the psalm of praise rises faintly on the sea breeze. One day it will sound for the last time, for the tottering walls with the rampart on which they stand will soon be swept into the great sea." Local opinion will doubtless regard the writer's view as too gloomy to be true, for the old Church stands in no immediate danger. The increasing requirements of a growing population, however, have started a movement for a new Church, or for the restoration of the venerable fabric which stands out so boldly opposite the new railway station. Many buildings at Mundesley stand nearer the cliffs than the ancient Church; and it may safely be said that the day of its collapse need not be expected for half a century, if at all. Here is sweet consolation for the nervous parishioners and the most regular of Church-goers.

SIR HENRY PARKES, when he was alive and in power in Sydney, beautified that city with a number of statues, and gave lordly commissions out of the public funds to his special friend and favourite, Woolner, and other English sculptors. His own statue is now to be erected in the city of his adoption in a very

singular and shabby style. It seems that a once wealthy admirer of Sir Henry ordered a statue of the statesman for his own private satisfaction, and secured it at a cost of £1500. Times having changed, and ready cash being desirable, he has now offered it to the Government for £100, and the offer has been accepted.

DR. SYMES THOMPSON has given an account of a tomb lately uncovered at Ephesus, which, it appears, is probably the tomb of St. Luke, the patron saint of the guild. The tomb was discovered ten years ago by Mr. Wood, but has recently been further explored. The character of the tomb is that of a central building, supported by pillars, with a dome, which originally had a capped top, and in the centre of this domed edifice is the tomb. Around this central enclosure was formerly a paved court, 150ft. in diameter, and in this court a large number of Christians appear to have been buried, evidently with the desire of being near the Holy relics. At the entrance of the tomb there is a cross—a Christian emblem—together with a bull, the emblem of St. Luke. Among the fragmentary remains of the tomb there is a large number of fragments of pillars.

A FRENCH artist in-faience, who has come over here to study the best English china of to-day, is surprised not to be able to find examples of it either in our museums or in our shop windows. He says that in the Museum of the Arts Décoratifs in Paris, or even in the shops, he has been able to learn more of what is being done than he could anywhere in London. Craftsmen in Paris can always rely on the Government seconding their efforts, where the results are good; the contrary would appear to be the case here.

On the river Caldew, and within a short distance of the historic City of Carlisle, lies the modest village of Dalston, which takes its name after the family that were for centuries the owners of the soil hereabouts. The Dalstons had for their seat the ancient castellated building, of fifteenth century erection, which nestles in the beautiful vale of the Caldew, and now occupied as a farmhouse. This old house, together with the adjoining estate of 1562 acres, and the manorial rights of Little Dalston, was offered to auction at the County Hotel, Carlisle, a few days ago. The estate comprises seven farms, the pleasant old village green, seventeen cottages, a licensed inn, two mills on the Caldew, and all rights of fishing in that stream.

SOME wonderful caves were discovered recently at a place called Sterkfontein, some eight miles to the north-west of Krugersdorp, in the South African Republic. Limestone had been quarried for some months in a small kopje, and after an explosion during some blasting operations a cavity of great depth was left. A long rope was secured, and a party descended, and it was found that they had driven through the roof of one of the largest of a series of magnificent caves. The spectacle was one of great beauty, the lights carried by the explorers being reflected from thousands of stalactites on every hand. The further the party proceeded the more beautiful the crystal formations became, some shaped like wreaths of roses and huge floral bouquets. The caverns, which have not yet been one half explored, seem to run in tiers down to a depth of 150ft.

VIENNA has suffered a disaster which, within a few hours, caused most serious damage to the extensive buildings of the proposed City Railway. The small river which gives "Wien" its name was swollen by a rainfall of seventy-two consecutive hours to a wild torrent. In the bed of this usually dry river a line of the City Railway is being built, which will be flanked by quay walls, while the river is to be covered over by a sort of arched roof, on which streets and houses are to be placed. The river-bed has been the scene of three years' hard work. A narrow-gauged railway ran into it for transporting the necessary material

for the works; one of the future quay walls was nearly complete, wooden bridges of great solidity had been built, and light bridges for the workmen had been thrown across the river in twenty places. All the framework, the bridges, and the railway were washed away by the flood during the night. Even the stone foundations and walls suffered seriously, and all the work must be done over again. The real danger to the city was that the thousands of rafters borne down by the rushing water upon six miles of river accumulated in front of the bridges which span the Wien at short distances from each other, and it was feared that one or more of them would break down.

AN effort is being made by a number of residents in the district to save the wooden gate of the churchyard near Drury Lane, through the iron bars of which Poor Joe showed Lady Deadlock the last resting-place of his singular and single friend Nemo. A faculty was recently granted, which will enable the old Golgotha to be turned into a street, and, as the gate has long been a veritable Mecca to Americans and lovers of Dickens in all parts of the world, it was felt that some effort should be made to save it from destruction, and preserve it by placing it in some convenient site in the neighbourhood. The question of expense is not likely to prove a stumbling block, as the value of the door for firewood and old iron cannot exceed a few shillings; while it is hoped that it may be possible to fix it, with a suitable inscription, in some part of the new parish-house which is being erected in the neighbouring Clare Market for the use of St. Clement Danes, with which parish the whole of "Bleak House" is so closely identified. The churchyard itself has practically already ceased to exist, so entirely have the surroundings been demolished, but the gate is still hanging on its rusty hinges.

RECENT Art concessions in London make one reflect with considerable regret on how very little is being done in the capital city of Ireland for the fostering and encouraging of Art either by the Government or by individuals. The National Gallery of Ireland is practically the only public collection of pictures in the country. It was started half a century ago by a gift of some £5000 from the Dargan Memorial Committee; and the Trustees have, with their slender Government grant of £1000 a year, endeavoured to form a collection of works of Art which should be worthy to rank with those of other capitals. So rapid has the progress of the gallery been of late years that the present building in Merrion Square is now too small for the collection; and, as is well known to those familiar with its walls, there is no room for further additions. If any expansion of the collection of portraits is to take place a new wing will have to be added to the present building.

M. ARSÈNE ALEXANDRE has some very severe things to say of the English School as represented in the Louvre. The occasion is the recent purchase by the Louvre of Romney's portrait of "a certain John Morley," to which we referred recently. The chief characteristic of the canvas is that it conveys no idea whatever of Romney, while the one thing that can be urged in its defence is that it is large and cheap. But with the 9000 francs which it cost, a good deal may sometimes be done, and M. Alexandre is prepared to prove that the Louvre Administration allowed a Corot to slip through its fingers a few years ago, which would not have cost very much more. To the plea that the Louvre is poor, he replies that, with the Lawrence bought last year, it has lately spent nearly 100,000 francs on the English section without making that section appreciably more valuable. This, in his opinion, is not poverty, but prodigality. He would have not only Romney represented, but also Reynolds and Gainsborough, Crome and Turner, Constable and Hogarth. But rather than spend money, however little, in giving the French public a totally erroneous idea of the English School, M. Alexandre thinks it would be much better for the Louvre to do without an English section at all,

No fewer than 115 projects for an attraction of an extraordinary nature at the Paris Exhibition to be held in the year 1900 were brought up for consideration at the meeting of the committee recently. They included a proposal to build a glass under-water restaurant, and another for two immense mirrors to be attached to the Eiffel Tower, one at the top and the other at the bottom, so that people promenading round the lower should see a reflection of nearly the whole of Paris. Another suggestion was to erect a memorial temple of present-century progress with representations of the eight great nations of Europe. A fantastic inventor submitted an idea for the erection of a model town of the future, in the year 2000, or some such advanced period. A doctor urged the construction of a miniature hygienic city, to be built on the most advanced and perfect hygienic principles, and inhabited by people living in strict accordance with the laws of hygiene. A startling proposal was that a house 600ft. high should be erected in order to show how tall a habitable building could be made without danger.

The report presented by Mr. Alexander Williams, as to the way in which Messrs. Nairn and Son had carried out the work of restoring the Mansion House pictures, Dublin, is certainly interesting. The portrait of the Right Hon. Speaker Foster, before it had been cleaned, showed traces of having been barbarously treated, and there were signs that the picture had been repainted and worked over more than once. When he last examined the picture he was agreeably surprised to find that Messrs. Nairn had succeeded in removing all the old varnishings and discoloured repaintings, and had got down to the original painting by the Artist. The separate parts had been placed together, so that the damages were almost obliterated, and the canvas had been made to assume its former flat appearance. The portraits of Sir Wm. Alexander, the Earl of Hardwicke, and Sir Daniel Bellingham, first Lord Mayor of Dublin, were almost in as bad a state, and all have been successfully restored.

TOWARDS the close of the year 1844 some workmen who were employed repairing the wall of a house in Marseilles, the ancient Massilia, came upon a stone upon which they discovered some very curious writing. They reported the matter to their employers, who had the slab examined by experts. It was then found to be a valuable Phœnician inscription of the second or third century before the Christian era. The stone was removed to the Marseilles Museum, where it remained in obscurity until a year or so ago, when the Rev. James Macdonald, of Oxford, undertook to make a thorough examination of the inscription, the results of which have just been published under the title of "Massilia-Carthago Sacrifice Tablets (D. Nutt, London, 8d.), 1897." From this publication we learn that the tablet is inscribed in the Phœnician language, with the order of sacrifice to be observed in the Temple of Baal-Tzephon. It is curious to note that this is the very deity mentioned in Exodus xiv., 2, who had a small temple on Mount Cassius, and who was one of the many Baals worshipped by the Phœnicians. In language the inscription is very similar to that of the Moabite Stone in the Louvre Museum, and the order and specifications of sacrifice correspond closely with the teachings of Leviticus.

MR. CHAMBERLAIN, replying to a correspondent's inquiries regarding provisions of the Workmen's (Compensation for Accidents) Bill, says: "The provisions of the Bill will apply to all buildings in process of demolition, to all buildings which are being constructed with the help of steam or any mechanical power, and also to buildings which are over 30ft. high. The definition is taken from the Factory Acts, and will include the great majority of all the accidents which occur in the trade, while at the same time it is intended to relieve from liability the very small builder, who is often no better off than his own workmen."

SPEAKING of the tall tendencies of the Americans as regards their public buildings, a writer in Pearson's Magazine says:—"I doubt whether anywhere in the world there is such a magnificent entrance hall as that in which you find yourself as you enter the building of the Metropolitan Life Insurance Company of New York. It is a fairy palace of white and coloured marble. So wonderful is the beauty and so impressive the majesty, that you feel you must raise your hat and tread on tip-toe as you walk over the glistening floor. In many of these buildings there will be a dozen or more elevators running from early in the morning till late at night. With so many passengers and such a number of stories, they have to be worked on a system like railway trains, the express lifts not stopping until a certain floor is reached. A vast mechanical plant is required to supply the power for these elevators, and to provide the entire building with light and heat. Even the porters and lift attendants do not know the names of half the smaller tenants which are registered in gold letters on a black background in a gigantic glass frame measuring 15ft. or 20ft. in height. To facilitate the work of finding the office you require, the numbers of the rooms on each floor begin with a new hundred, so that even if there happened to be only eighty-eight rooms on the third floor, the first office on the fourth floor would be numbered 400. To some buildings a post office is attached; the vaults are filled with fireproof safes, while such small matters as barbers' shops and boot-cleaning parlours are quite essential as part of each aerial city. The Ivins Syndicate building is perhaps the monarch of New York sky-scrapers. It is twenty-nine stories high, covering an area of nearly 15,000 square feet. The cornice of the towers is 386ft. above the level of the street, and, the foundations extending 34ft. below the ground, the total height of the structure is 420ft. The total dead and live load is 50,000 tons! Fifteen thousand feet is a very large space indeed, when you remember that on the business end of Broadway land is worth from £270 to £540 a square yard. No wonder that people prefer to live one above the other instead of side by side; no wonder that where one-story shanties were allowed to stand a few years ago there are now these Jack-and-the-beanstalk edifices, the tops of which you cannot see without almost breaking the back of your neck."

CONSIDERABLE local feeling is being engendered at Twickenham by the action of the workmen of the Duke of Orleans, who are engaged in overhauling York House, where His Royal Highness has expressed his intention of taking up his residence shortly. Visitors to Twickenham will remember that the road from the Parish Church, past the river front of York House, bisects the grounds. On the riverside there is a pretty lawn, and the low hedge which existed there allowed one of the most charming scenes of the island, the ferry, and the Ham fields, to be viewed from the road. Within the last few days the workmen have grubbed up the hedge and commenced to put up a brick wall, which is to be of such a height as to entirely block out the view of the river for a considerable distance, and thus destroy one of the most picturesque spots in Twickenham.

FORTUNATELY the decision of the Italian Government to purchase, for the sum of £240,000, the famous Borghese collection, averts, the danger, which was at one time imminent, of this splendid array of Art treasures being dispersed; and the acquisition by the City of Rome of the palace in which the collection is housed ensures the preservation of the building and its contents without any alteration. As among the pictures there are such notable works as Raphael's "Entombment," Titian's "Sacred and Profane Love," Correggio's "Dane," and many others by the greatest Italian artists, collected with admirable judgment, the loss to the Italian nation which would have resulted from an open sale would have been lamentable.

In the vicinity of Saltash are three of the most interesting castles in the West. Trematon Castle, near the Lynher Creek, has been modernised, but contains portions of the building which, so far back as the Conquest, fell to the share of Robert of Mortain, half-brother of William the Conqueror. It was afterwards held by the Valletorts, and the Black Prince subsequently gave it for life to Sir Nigel Loring, his companion in arms during the French wars. Ince Castle, also near the Lynher, can show very little of its former splendour when it was the abode of the notorious John Killigrew. Pentillie Castle has been greatly modernised, and is interesting from the fact that behind it, on a well-wooded hill, stood an old tower, in which Sir J. Tillie, a former owner, who died in 1712, left instructions that he should be placed, after death, in this tower, seated in his customary dress, before a table furnished with wine, pipes, and tobacco. His wishes were not carried out, but he was buried in his favourite tower.

DURING the construction of the Grand Central Railway the officials who are conducting the geological surveys of the country have taken every opportunity of examining the sections of strata laid bare. Mr. Woodward, Mr. Fox-Strangeways, and Mr. Reid have made careful examination of the cuttings between Baker Street and West Hampstead, and between Quainton Road, Aylesbury, and Annersley, but the result of their examination has not yet been made public, and it is not expected for some time. The earthworks, extending from Rugby to Quainton Road, are now almost completed; indeed, the work upon the southern division is in a very advanced state. Only one viaduct—that at Catesby—remains to be finished, and this is now approaching completion. The brickwork of the tunnel, which is some 3000 yards in length, has already been finished.

ANOTHER exquisitely foolish suggestion has been made that a law shall be passed to forbid American painters going abroad, so that an Art may be secured which shall be truly American. Of course, the only result of such an enactment would be that every American student possessed of either capacity or ambition would fly from the country where his fetters would weigh upon him so heavily; and the residue of incapable daubers would establish a truly American Art that would be the laughing stock of the world. The reason advanced for this astonishing suggestion is that American Artists who go abroad get foreign ideas and learn foreign methods, so that, in spite of the tax levied in the interest of American Art, what is brought back to America is a transplanted foreign Art. As the whole reputation of America as an artistic nation is supported by men like Mr. Whistler, Mr. Sargent, Mr. Boughton, and Mr. Abbey, who have, most fortunately, not trusted to native advantages for the perfecting of their skill, this objection to foreign study is sufficiently quaint.

THE argument of some of the American papers in defence of the imposition of a 30 per cent. duty on works of Art imported into that country is amusing in its utter misconception of the real needs of a National Art School. It reveals a condition of opinion with regard to artistic questions that is quite enough to account for the failure of the native school in America to take the position which, judging by the achievements of its Artists who have settled in other countries, ought to have been well within its reach. When Art is looked upon merely as a local industry, whose only chance of existence is to be found in its careful protection from all outside competition, and when it is openly pleaded that the only possible way of establishing an American Art is by compelling the American people to buy the pictures painted by their own Artists, we may safely conclude that a vast array of the lowest kind of mediocrity will be all that America will be able to contribute to the Art of the world. It is curious how the practical person fails to understand that a National School is

not a local affair, but the result of an intimate acquaintance with what has been done by the greatest Artists in other countries.

A PICTURE with rather a curious history has just been acquired by the French Government and placed in the Luxembourg. It is a "Raising of Lazarus," which during its recent exhibition in the Salon attracted a great amount of attention. The Artist who painted it, Mr. Henry Tanner, is an American negro, the son of an African missionary, and he has received his artistic education in the studio of M. Benjamin Constant. Pictorial ability in men of his race is somewhat rare; but Mr. Tanner, not only in this latest success, but in many other clever pictures as well, has proved himself to be an artist of distinct power.

THE awards of the examiners in the national competition of Schools of Science and Art have just been published. The number of works sent up for examination were as follows:—50,255 from 281 Schools of Art and branch schools, 35,560 from 298 science schools, and 11,796 from 449 Art classes. Of these 5853 were selected for national competition. Sixteen gold medals, 94 silver medals, 255 bronze medals, and 510 prizes of books have been awarded, in addition to awards made to students at the Royal College of Art. The Birmingham Municipal School of Art holds its place at the head of the list in respect of the number of awards obtained, and these include three gold, three silver, and seventeen bronze medals. The following table gives a comparison of results at the principal schools:—

	Gold medals.	Silver medals.	Bronze medals.	Book prizes.	Total awards.
Birmingham	3	3	17	38	61
Glasgow	3	3	23	23	57
Leeds	—	2	9	20	31
Leicester	1	3	11	14	29
Nottingham	1	2	6	14	23
S. Kensington	1	1	6	15	23

The Birmingham winners of medals are as follows:—Gold medal: W. Haywood, measured drawings of Architecture; O. Scattergood, design for tapestry (the Princess of Wales' scholarship of £11 was awarded to this student); J. A. Swan, design for provincial market. Silver medals: Edith A. Cowell, modelled design for casket; W. Haywood, design for a fountain; Violet M. Holden, figure design. Bronze medals: Ethel M. Child, M. Clarke, Ethel I. Cook (two), Lily G. Dale, Elsie Gray, Evelyn Holden, A. R. Holloway, G. W. Hughes, Florence A. Marriott, Martha A. Onions, Edward J. Sims, F. T. Thomas, C. K. Thompson, Effie D. Ward, Eleanor L. Ward, Ernest E. Toy. Among other schools obtaining awards are the following:—Cardiff, one silver medal (C. Holland), one bronze medal, and five book prizes; Derby, two silver medals (W. H. Meggs and W. H. Tomlinson) and five book prizes; Hanley, three silver medals (G. Cartledge, two, and F. Harper) and one bronze medal (H. Hammersley); Rugby, one silver medal (A. E. Martin), two bronze medals (A. E. Martin and J. J. K. Phillips), and five book prizes; Stoke-on-Trent, one silver medal (A. H. Longmore) and three book prizes; Tunstall, one silver medal (A. Critchlow) and one book prize; West Bromwich, two silver medals (Annie M. Clay and H. Green), two bronze medals (Florence A. Birch and M. Theckla Pearce), and nine book prizes; Wolverhampton, one silver medal (A. J. Hardman), three bronze medals (H. Whitcomb, G. Wootton, and Mary H. Wright), and eight book prizes; Burslem, two bronze medals (Florence Henshall and W. Sambrook), and two book prizes; Coalbrookdale, two bronze medals (Cecil Jones) and two book prizes; Coventry, one bronze medal (D. Anderson); Dudley, one bronze medal (S. R. Birks) and one book prize; Handsworth, one bronze medal (Annie Fellows) and one book prize; Stourbridge, one bronze medal (Edith H. Webb) and two book prizes; Wordsley, one bronze medal (C. J. Carder); Worcester, two book prizes; Cheltenham, Gloucester, Kidderminster, Longton, Leek, Newcastle-under-Lyme, Oldbury, and Shrewsbury, each one national book prize.

PARISIANS have been somewhat amused by

the announcement that the piercing is about to be terminated of the artesian well of the Butte-aux-Cailles. The reason is that it is now more than thirty years ago that a precisely similar announcement appeared in the papers, and from that day to this the promise has never been fulfilled. The well in question is one of four whose construction was planned as far back as 1833 by Arajo, the famous scientist, who maintained that Paris could obtain all the water that it wanted from its subsoil. These hopes have not been realised, but the artesian well at Passy still yields a sufficient volume of water to keep the artificial rivers in the Bois de Boulogne running. The piercing of Butte-aux-Cailles well has encountered all sort of difficulties, but they have now been surmounted, and the engineers prophesy for an early date a daily yield of 10,000 cubic metres of tepid water. But Parisians have learnt to be sceptical in the matter, and the promised creation of a monster bathing establishment will not be believed in until it is seen.

THE Euston Barracks at Fleetwood, which were recently sold by auction for £15,000 to Messrs. Cardwell, Thompson, and Gardner, of the Whittle Springs Brewery, Chorley, have passed through many vicissitudes. Built about half a century ago, the property, which is in the form of a crescent, with a frontage to the sea of about 300ft., was originally known as the North Euston Hotel, the idea of its founders being to make Fleetwood a fashionable watering-place. Many titled personages stayed there in those days; but misfortune came upon the town, and in 1859 the hotel was purchased by Government and converted into a school of musketry, quarters being provided for about sixty officers and a staff of military instructors. Subsequently other buildings were added, and the structure converted into barracks, for which purpose it continued to be used until comparatively recent years. Recently it passed into private hands, and now there seems a probability of an effort being made to transform it to its original object.

WITH reference to the Parliament Street Improvement Scheme, a correspondent writes:—"The tenants in this street, who are compelled to quit at Michaelmas in view of the public improvement scheme lately sanctioned by Parliament, are surprised and indignant at hearing that, notwithstanding they have acquired vested interests through long residence, if without leases they are not to receive the smallest compensation for disturbance. The Office of Works has, in fact, assured them that their equitable claims, as they regard them, will not even be taken into consideration. Some of the tenants have occupied their premises or chambers for a long period of years, extending perhaps to half a century. To many of them it is essential to be in close proximity to the House of Commons, and other suitable offices are just now not procurable at any price. The mere fact of there arising a large and sudden demand for accommodation within a limited area is also causing a considerable enhancement of rents in the district, in itself a reason, it is felt, for moderate compensation. In any case these tenants must suffer much inconvenience and considerable monetary loss for the sake of a public advantage. An agitation, it appears, is already on foot for laying a protest before the First Commissioner of Works, and, if necessary, of making an appeal to the opinion of the public."

In a recent issue we published a letter by Mr. Thomas Wrightson on the subject of bridge-making in Egypt. A second letter on the same subject has since appeared in the Times. "Impune" writes: "Lord Cromer, in referring to the Embabeh Bridge, calls attention to the fact of the English tender being more than twice the amount of the lowest tender sent in, which he rightly thinks is too great a difference. Later on he refers to another bridge for which ten tenders were put in, and in this case the English offer was nearly three times as great as that of the

lowest. It is to be noticed that in both of these adjudications only one English offer was put in out of a large number by French, Belgian, and German houses. There is no doubt but that in these cases the English tenders were merely perfunctory, and not put in for serious competition. The reason of this is not far to seek. The terms of tender of the Egyptian Government are clogged with exacting and one-sided conditions, which put the contractor completely in the power of the Government, should he happen to be an English subject. No business man will take risks of this sort except at very much higher prices than he would ask ordinarily, if, indeed, he cares to take them at all. It is otherwise with Continental houses, who know that should the contract prove unremunerative, or in the event of difficulties occurring, they can rely upon the support of their Consular or diplomatic officials to make out a case for them, by which they would avoid the danger or are able to impose claims for extra payment themselves. Further, if matters are carried to the Mixed Courts, while the Government rarely succeeds against Continental contractors, Englishmen, on the other hand, rarely find the Mixed Courts favourable to them, and all proceedings have to be conducted either in Arabic or in French. English contractors, however, know perfectly well that they cannot expect undue assistance from English officials, and even if they tried to extract it from them, they would be promptly told (and with some justice) that they had no business to take contracts without providing for all contingencies therein. It seems strange that Lord Cromer and those English officials in Egypt, who undoubtedly wish to encourage English enterprise, do not see that some greater equality is needed than at present obtains."

"In the second place," the letter proceeds, "preparation of full plans when merely tendering is a costly and time-occupying process, and when this cost and trouble is multiplied by the number of firms who put in for a contract the amount becomes a considerable one. It surely would seem that when tendering a provisional specification and drawing should be sufficient, and if that is approved in principle and the offer accepted it would then be time enough to require the contractor to produce full designs for approval. The other alternative is for the buyer to issue complete specifications and plans for contractors to tender on. Although one or two English officials in Egypt may have strong French or other proclivities, and although the special consideration generally shown towards Continental firms in that country somewhat strikes an Englishman, yet were more consideration extended towards this country, and if specifications and contracts were framed in a manner more in accordance with English practice, there would be no difficulty in attracting competition of a very different character to that which prevails now, for I have no hesitation in saying that the existing methods are not always such as to place tenderers on an equal footing, or even on an equitable one. Conditions should not be imposed because they fall in with obsolete or inapplicable regulations, or simply because unscrupulous foreign competitors are willing to swallow them, at all events in appearance. Technical questions should not be decided on or absolutely governed by the Department of Finance. Lest there be misunderstanding on the head of more consideration being extended to this country, I hasten to explain that I mean that it would be to the benefit of Egypt itself if the competition of English makers were secured by the acceptance of methods, not only equitable in themselves and to all, but which time has proved the use and advantage of."

MR. JOHN MILLAIS is writing a life of his father, which he hopes to have ready in the autumn. He is getting some of the models who sat to Sir John to give him some of their reminiscences of the sittings. Amongst the most interesting of these is Mrs. Perugini (Kate Dickens), who is the original of the sweet-faced maiden in "The Black Brunswicker."

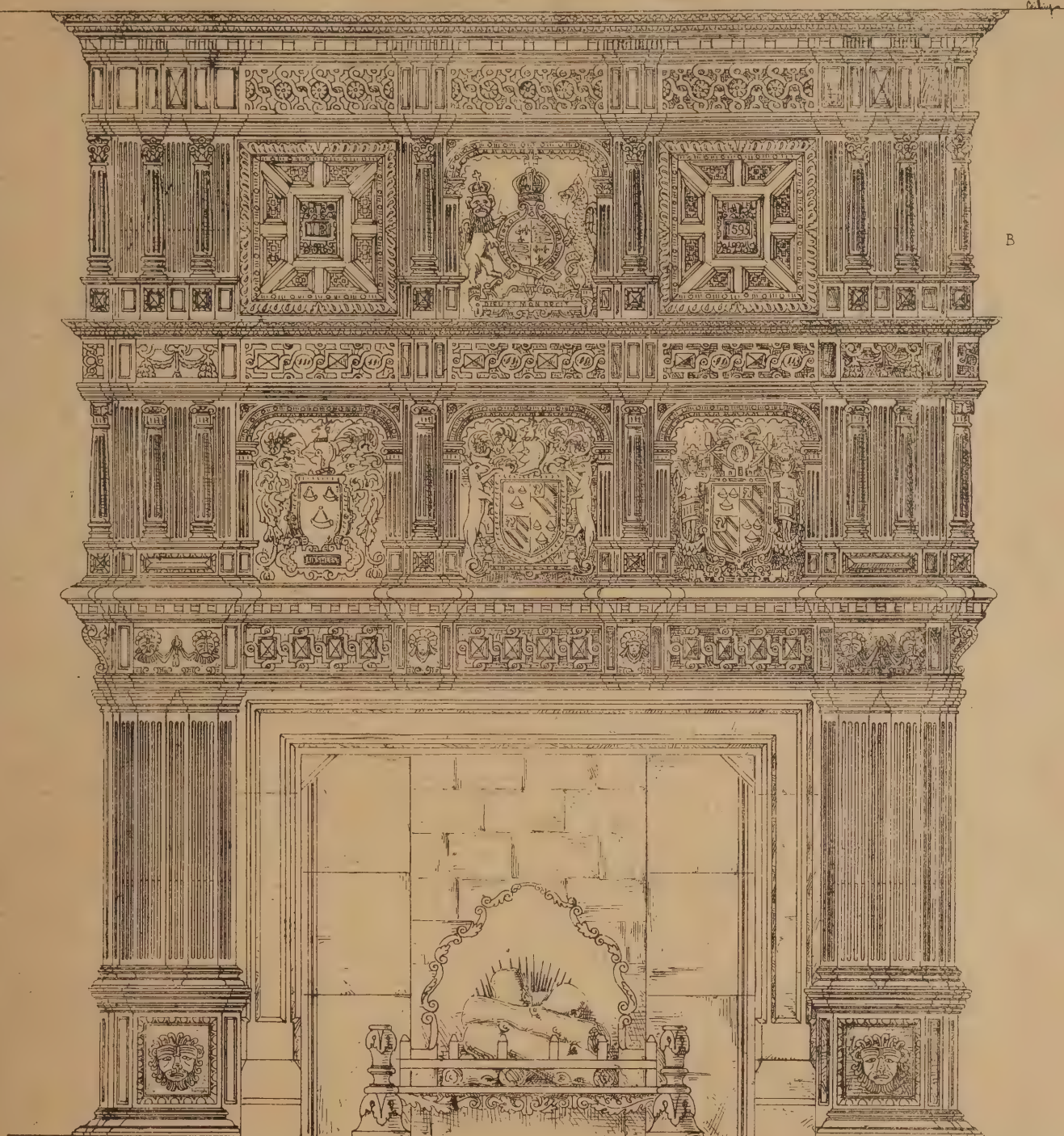
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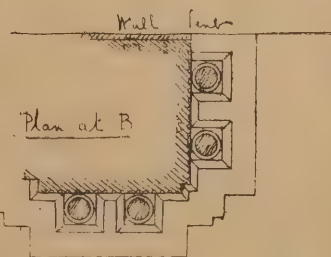
(Sketches of Leaves Doubtful in front Variation)

E.P.M. Del.
C.M. LITH.

LEVENS HALL. OAK CHIMNEY-PIECE IN DRAWING ROOM



FRONT ELEVATION.



Scale of 1/2 1/4 3/8 1/2 3/4 1 foot

From a drawing in the possession of
S. J. Harris Esq. Lancaster
CH. 50

Ed. & L.R.

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Surveying and Sanitary SUPPLEMENT.

AUGUST 18TH, 1897.

HOUSE SANITATION AND DRAINAGE.

By E. CROPPER.

(Continued from page 17.)

THE soil and waste-pipes having discharged their contents outside the building, it remains to describe the arrangement of the drainage system conducting the sewage to the sewer. But before doing so we will dispose of the rain-water. This may be done in three ways: 1, by drains from the feet of the rain-water pipes led into a collecting-pit or tank made watertight, and pumped up as required for use in the garden or in the wash-house; or 2, the cesspit may be made porous so that the water may soak away into the soil; or 3, it may be led to the sewer as part of the sewage from the house. In the plan of the house accompanying this article the rain-water has been collected for use. Some towns' authorities refuse to dispose of the rain-water, in which case it must be treated by methods 1 or 2, the drains being laid as for sewage with glazed stoneware socketted pipes and jointed in cement. They are then collected as shown on drainage plan, and passed through a brick filter chamber made watertight by a lining of Portland cement and sand one to one, and one inch thick, well worked into the joints and floated smooth. The water filters through a layer of clean pit sand, placed as shown by detail across the chamber, and passes to the pit. It is advisable to keep the tops of these pits under the surface of the ground, so that they do not attract the eye. A pump should be arranged where convenient to draw off the water. For a house of moderate size, a chamber 8ft. deep by 4ft. square or 5ft. diameter is a suitable size.

If the water is to soak away, there is of course no need of the filter. The pit may be about 3ft. diameter, and 4ft. or 5ft. deep, of bricks laid dry, with 12in. of broken stones as a backing to help the water away. This pit should be placed some distance away from the house, say in the centre of the tennis lawn or the kitchen garden. Both of the pits should have an overflow drain, which may be of 4in. agricultural pipes with open joints, extending about 30ft. away from the house; or, if there is a water-course conveniently near, the drain should be taken to it.

Apart from the requirements of the local authorities, rain-water ought always to be looked upon as a valuable acquisition to the garden, and it should be the rule rather than the exception to see it preserved for use. It should be treated more as a welcome visitor than an interloping vagrant to the average suburban residence.

If the rain-water is to be carried to the sewer, the foot of the down pipe may be connected to the inlet of a trapped gulley taking any of the waste-pipes from sinks, provided they can be grouped together. The rain-water then discharges under the perforated grating

of the gulley, with an open end, thus allowing the air to circulate up the rain-water pipe. One still sees them discharging by a shoe over trapped gulleys, but this is a mistake. In times of heavy storms, or if the grating becomes covered with leaves or debris, the water overflows on the gravel path or soaks into the brick walls.

When the drains from the rain-water pipe are very long, or when an old drainage system is being merely improved, or the house system only is being brought up to date, it is always advisable to put trapped gullies under the rain-water pipes; but where the whole system is quite new, and there is no sink gulley to turn into, and when the length of drain to the manhole is short, say, under 20ft., these traps may be dispensed with, the down pipe being joined direct by a stoneware bend to the drain, and so to the manhole. If the length of drain is long, then it is advisable to join the down pipe to the inlet of a Hellyer's rain-water shoe (which has no trap), which is connected to the drain. This shoe (see illustration in last issue) exposes the ends of the down pipe and the drain to the fresh air. It should not be used near windows or paths, being substituted by a trapped gulley or a direct bend into the drain in such cases.

A well-constructed system of drainage will have: (1) direct lines of drains, or nearly so, from the manholes, which will be placed so that the drains may be cleared by the long rods of obstacles that will find their way into drains; (2) good and uniform gradients; (3) careful trapping of such lengths of drains as need it, but an absence of traps where free circulation of air is better; (4) complete disconnection from the sewer; (5) ample ventilation of all drains; (6) good workmanship and materials, that will withstand the proper tests when completed. Without these any system, however well-planned, must always be a danger to health.

In arranging the drainage, place the several waste, soil, and rain-water pipes on the drainage plan, lettering each; then work in the several lines of drains to the manholes, keeping them in straight lines if possible, and the soil apart from the water drains, or carefully disconnecting them before joining.

The gradients of soil drains should never be less than one in forty, or 3in. in 10ft., and more if possible. The gradients should not dip or vary in any one length of drain, or the rods will not pass; a light should be flashed through from one end to test the drains in this respect. A gradient of one in sixty or eighty will suffice for rain-water drains if more is not obtainable.

Manholes for inspecting the drains and clearing them when choked should be at least 22in. by 18in. internally, as no man can work in less. One often sees them 18in. square, but this is not enough, unless the drain is very shallow. If the drain is 6ft. or more deep, it is better to make the manhole 27in. by 18in. or 22in., so that the rods can be used more freely. The manhole next the sewer must be at least 31½in. by 22in. to include part of the Kenon's or other disconnecting trap, and it is better 36in. long.

They are generally of 9in. brickwork, resting on a 9in. layer of lias lime concrete, which forms the floor of the chamber to receive the channel pipe, care being taken to see that the bricksetter hollows out a space in the concrete to receive the sockets of the pipes and trap, so that their whole length rests on the floor. The channel pipe being laid, the floor should be sloped up to the brick sides, as illustrated last week, the surface being finished with a ½in. coat of cement and sand, in equal proportions, trowelled hard. Galvanised wrought iron manhole treads should be built in every four courses where the depth is over 3ft., not directly under each other, but about 9in. apart. The opening at the top may be reduced by oversailing courses, to reduce the length of the stone curb. This is generally of 9in. by 4in., or 9in. by 6in. York or Purbeck stone, tooled and rebated for the iron frame and cover. Care is required in the selection of these, as many so-called "air-tight covers" are not so after the water has evaporated out of the shallow groove in which the cover rests. Moreover, a cover requires to be of much heavier and stronger pattern than usual if it is in the way of vehicles, and it is often advisable to select a locking cover where it is in the way of children's curiosity. The groove in all frames should be at least 1in. deep, and the rib of the cover fitting into it should be the same, the groove being filled with sand, or having a rubber seating in which the rib beds. The best air-tight covers, however, are those having underneath the surface cover another sunk, dished cover which can be filled with water, making a very safe seal against the emission of sewer gas.

All manholes should have a separate inlet for fresh air, so that a current may constantly be drawn in and up the drains and soil pipes by means of the extracting ventilators at the top. The inlet should be near the top of the manhole, and the 4in. stoneware pipe taken to a safe distance from pathways or windows, and either brought to the surface with a perforated grating and stone curb round raised a few inches above the ground, or taken up a convenient boundary wall, and ending in a mica flap fresh air inlet. The vertical pipe is generally 4in. cast-iron rain-water pipe.

The drains are generally laid at or near the completion of the building after the scaffolding has been removed. It is the general practice now to surround all drains with lias lime concrete; this should be an invariable rule where the drains are shallow, or run under buildings, pathways, or roads, or where shrubs abound, or where the bed of the trench is of made ground. If the drains are 3ft. or more deep, out of the way of traffic, and the bed is found to be hard, such as gravel, concrete may be dispensed with.

Drains are of glazed stoneware, or cast-iron coated with Dr. Angus Smith's solution, or treated with the Bower-Barff process for preventing corrosion. The cast-iron drains, having but one-third the number of joints of the stoneware, are used for drains passing under houses. Whatever the material be it should be of good quality. Each pipe should be tested before use, or it is unlikely that the

length of drain will stand the usual test when laid. Stoneware pipes are made as a rule in 2ft. lengths, but 3ft. lengths are now frequently used. Each pipe should be examined before use, for uneven glazing inside or outside, pinholes or blisters, any twist in length, or sockets not concentric with the pipe. Some firms also test their pipes and mark them as such.

Every pipe should rest its whole length on the bed of earth or concrete, which should be scooped out a little for the sockets and to allow the joint to be well made. If this is not looked to as the work proceeds it will not be done. The joint may be of clay or Portland cement, or with some patent bituminous substances fixed to the pipes by the makers, as in Stanford's, Doulton's, and other patent joints, which merely require wiping with an oiled cloth and laying. It is well, however, to put a cement collar round the outside of the joint to make it safer. No doubt drains so laid make the best work, but the cost is much more than with a cement joint. One great security in the patent joint is that it prevents the cement working up the socket and projecting inside the pipe, thus reducing to a minimum the possibilities of careless laying. It is very probable that this method of jointing will become the rule rather than the exception in the future, where good results are the desideratum; but the cement collar should be made outside to make it air-tight beyond a doubt.

The usual jointing material used to be clay, and it still has a few advocates, as it gives more easily with settlement than cement; but it has many drawbacks. It is not consistently hard, it cracks when drying, and the roots of shrubs and trees easily penetrate through it into the drain. The common method is to joint with Portland cement. Two or three strands of yarn or tarred gaskin should be wrapped on the end of the spigot to keep the cement back; the pipe should then be laid, and the cement pressed in the socket all round, and flounced off at an angle of 45 deg. from the outer edge of the socket. Very often the pipe is first laid and the yarn or gaskin is caulked in. To further safeguard against cement lodging inside the pipes, they should be cored as the work proceeds, by dragging through them a circular wood block of same diameter, or nearly so, as the pipe, attached to a handle. This brings any cement with it.

For drains running under a house, anti-corrosive cast-iron pipes are best; they are, of course, more costly, but fewer joints are required. They should be of $\frac{3}{4}$ in. metal or of heavy water main strength, and each pipe should be tested before being coated by sounding them with the hammer. The joints should be carefully caulked with yarn or gaskin, as before described, and filled in with molten lead caulked solid. It is better if possible to lay these in a brick subway under the basement or along the walls of the passages, but if not, they should be embedded and encased with 6in. of cement concrete. It should be noted that lime acts on iron, and in time destroys it, therefore none should be used in the concrete. Where the drain passes through a wall, it should have an arched opening, so that it is independent of any settlement.

A manhole should be placed on the drain both on entering and emerging from the building, and it is sometimes necessary, when the length of drain is 50ft. or more, to be able to examine it in the building, in which case a 6ft. length should have a sight-hole and cover, each flanged and secured with four gunmetal bolts. If the drain is encased in concrete, a brick manhole must be built round the sight-hole, but if it is in a subway, such a thing is not needed. It is often necessary to connect soil and other pipes to an internal drain, as when they pass from conveniences placed in the well of the building, and it is desirable that the junction should be exposed, greater precautions must be taken to prevent the sewer gas passing into the rooms by placing in an ordinary manhole, and on the line of junction of drains, a cast-iron inspection chamber, with air-tight locking cover and separate inlets for each pipe and drain. The Scott-Moncrieff and Smeaton's patents are examples of such con-

nections. The cast-iron drain is then continued to the front area, where the manhole receives it, and affords disconnection from the sewer.

After each length of drain has been allowed to stand a day, and before covering with concrete or earth, it should be tested by stopping up the lower end and any branches, and filling with water; a head of eight or ten feet of water should be obtained to each section to make the test more in accordance with its future use. This is not a severe test, and good materials and workmanship should stand it, showing only a slight leakage due to a little sweating of the pipes. In the best work the system is tested again at completion as a whole, but the result need not be feared if the parts have stood their first test well. If all is found correct, then the concreting may be done over the drains, but without any ramming. Earth should not be rammed until at least 12in. has been spread over the drain; water poured on it is a good substitute. It is useless for a good drain-layer to do his work very carefully, and then be followed by a heavy-handed labourer to fill in and ram.

To sum up this article, a specification is added of the external drainage usually required in a middle-class house, such as we illustrated last week, where the rain-water is separated for use.

Specification.—Lay the rain-water and other drains as shown with tested salt-glazed, stoneware, socket-jointed drain pipes, having Doulton's patent joints, and to be of the sizes shown, with all necessary bends, junctions, tapers, &c. The pipes to be bedded solid, so that the whole length rests upon the hard solid bottom.

The soil drains to have a fall of at least 3in. in 10ft., and more if possible, and the rain-water drains 1 $\frac{1}{2}$ in. in 10ft., the gradients to be perfectly uniform.

Where drains run under paths or buildings, to be surrounded with 6in. of cement concrete.

Provide and fix, where shown, Doulton's or similar reversible interceptors (Fig. 13A), with galvanised cast-iron gratings and side inlets to receive the waste-pipes under the grating. The surface gulleys to be Doulton's yard gully (Fig. 19A), or a similar pattern.

All traps, gulleys, &c., to be set in brickwork or concrete.

Build the several manholes of sizes shown, walls to be one brick thick, built in lime mortar resting on bed of lime concrete 9in. thick, and flat-jointed for lime-whiting. To have white enamelled channel pipes and bends as shown, and the sides to be sloped up in concrete and floated smooth in cement.

Tops to have two courses of brick corbelling, and 9in. by 4in. tooled York or Purbeck cover stone, rebated for Adams' or other equal air-tight galvanised cast-iron flap and frame, set in cement. Build in galvanised cast-iron horseshoe foot irons, 12in. apart, to those shafts more than 3ft. in depth. Twice lime-white walls of manholes.

Fix on sewer side of chamber next sewer, a Hellyer's or Kenon's or other equal sewer disconnector, with cleaning arm and stopper.

Arrange for making connection to sewer in road and pay all charges.

Take from near top of manhole 4in. stoneware ventilating pipe, as shown, to adjoining wall, with a bend to receive a 4in. vertical heavy rain-water pipe running up 6ft. above ground, with a 4in. mica flap air inlet fixed on top of same.

The rain-water system of drainage is to be kept separate from the soil drains, and is to be arranged as shown by plan and details, the drain being conducted to the filter-pit, which is to be built similar to manholes, with cement concrete bed trowelled hard, and walls to be rendered in cement lin. thick. To have perforated porous stoneware plates lin. thick across the manhole, built into the brickwork 3in., and the space between them filled in with clean well washed pit sand, to form the filter. Take from this a 4in. pipe to the storage tank as shown.

The tank is to be of 9in. brickwork built circular on plan 4ft. diameter and 8ft. deep, with two courses of footings, all built in cement on 18in. bed of cement concrete floated hard

and smooth, the walls to be rendered with a cement coat lin. thick similarly finished. To be covered with a 4in. tooled York or Purbeck stone in two parts, bedded in cement, and the top to be, when finished, 6in. below the surface of ground.

Provide and fix to same a hand pump, complete, p.c. £3, with a length of galvanised wrought-iron pipe extending to near bottom of tank, and taken out 2ft. from top, underground to the inside wall of wash-house where the pump is to be fixed.

Take from near top of the tank as shown an overflow drain of 4in. porous agricultural pipes, with open joints, to a distance of 30ft. (or to the kitchen garden, or neighbouring streams), to finish with an open end.

Each length of drain to be tested before covering, in the presence of the Architect or his representative, under a head of water of at least 8ft., and to show no appreciable leakage under such test.

Surveying and Sanitary Notes.

In connection with the "Hygienic Congress" at the Brussels Exhibition, the members of the Sanitary Inspectors' Association have arranged to visit Belgium early in September. Their programme includes visits to and inspection of the sanitary works at Antwerp, Malines, Ghent, Bruges, Ostend, and Brussels. Receptions by the Burgomaster, Aldermen, and Councillors will be given to them at most of those towns. M. Buis, the Burgomaster at Brussels, has invited them to a reception at the Hotel de Ville on the evening of Monday, 6th prox., and has also placed the Militia Hall at their disposal for their meetings whilst in Brussels. At Ostend a reception will be given at the Hotel de Ville on the morning of Friday, 10th prox.

The drainage of Killin (Scotland) has now been completed; the town has been laid with new sewers, and these are provided with manholes, flushing tanks, and ventilators in accord with the most recent sanitary improvements. The old system discharged into Loch Tay. The sewage is now precipitated and purified by the "International" process in works situated at the south side of the railway, in a park belonging to Lord Breadalbane. The area of the ground occupied by the works is a little over an acre. The main sewer is carried through the railway embankment in iron pipes, and thence through the screening and chemical chambers, where it receives treatment with ferrozene. Next it flows into the mixing chamber, where, by a system of paddles, it is made to travel up and down through a height of 4ft. and through a total length of 64ft. By this means it is thoroughly mixed with the chemicals, and sludge is deposited. From here it passes into the precipitation tank, which is fitted with Condy's patent sludge elevator. It is of brick, 11ft. diameter, and 14ft. deep. In this tank complete precipitation takes place, while at the surface the effluent overflows into channels, and is led into the "polarite" filters. The sludge is lifted by an ingenious arrangement. The pressure of fluid in the tank drives the sludge through perforated holes in a horizontal pipe travelling on a perch centre in the tank bottom, and balanced. When a rotary movement is given to this pipe by a rock and pinion wheel worked by hand above, the sludge rises through the pipe, and passes into the sludge pits, where it is air-dried and ready for removal as a valuable garden manure. Much satisfaction is expressed at the complete success of this installation, which is a first example of this system in the West of Scotland. The works have been designed by Mr. Wolfe-Brennan, C.E., of Oban; the contractor was Mr. Bremner, Forthingall; the iron work of the tanks, &c., was supplied by the International Water and Sewage Purification Co., London; and Mr. R. Cameron, Edinburgh, was clerk of works.

At a recent meeting of the Retford Town Council the report of the engineer, Mr. J. C. Melliss, on the drainage question, was considered. "Not many of the existing sewers are sufficiently good or at suitable levels to be made available as part of a new scheme," the report states, "but in a few instances some of them, though far from being in accordance with modern requirements, might have their reconstruction deferred until after the general scheme is carried out and completed. These are as follows: Moorgate Park, part of Lidget Lane, St. John's Street, Holly Mount, King Edward Terrace, Dominic Cross Road, part of Wharton Street, part of Caledonian Road, and a portion of West Field. The remainder of the existing sewers which are unsuitable for sewage purposes should be retained, as far as practicable, for service water drains. I have, in calculating the sizes of the sewers, provided for a certain quantity of rainfall water entering them, but all surface water and subsoil water must be excluded from the new system as far as possible. Owing to the fact that the river and several water courses pass through the town, a surface water system of drainage will not be an expensive matter, but it may be necessary from time to time to put in some additional surface water drains as they are required. The present sewage of the borough can (with the exception of the village of Ordsall) be collected by gravitation to the northern and lower end of Bollam Lane, and avoid the expense of intermediate lifts. The sewers will be of sufficient capacity for the sewage of 30,000 persons. The report goes on to state that the sewage will be conveyed by gravitation to the lower end of Bollam Lane, where a lifting station will be provided, containing three 500-gallon ejectors, two of which will be capable of lifting the sewage to the disposal works, and one will be kept in reserve. The ejectors will be worked by compressed air, and, as their action is automatic, little or no labour will be required. The land required for a site for precipitation works and filtration of effluent water, 32a, 2r, 22p. (this has already been secured). Buildings containing strainer, engine, boiler, chemical mixing, and

press houses, coal, and other stores, workshops, men's rooms, offices, &c. The machinery will be of the best, consisting of boilers, air compressors, sludge presses, mixers, &c. This machinery will be provided in duplicate, in order to guard against breakdown. The probable cost will be £38,853 19s. 5d., or, including Ordsall, about £40,000." It was explained that this would mean an addition of 1s. 9d. in the £ per annum to the rates, making altogether 4s. 3d. in the £. The report was adopted, after a lengthy discussion, and an explanation that the whole question would come before a public enquiry, to be held later on by the Local Government Board.

MR. J. E. EVERETT, the resident engineer for the construction of the new marine promenade and drive at Scarborough, reports that since his last report 208 concrete blocks have been made, containing 221 cubic yards of concrete. The foundation of the sea-wall for a length of 96ft. is complete, and a length of 54ft. has been carried up 4ft. above that level, and backed up with concrete. The excavations for foundations and the setting of blocks and backing them with concrete are now being carried on simultaneously, independently of the men who are making the blocks. The gang of men employed on the Castle Cliff are making good progress in sloping it down to a safe angle.

A NEW reservoir, constructed by the Corporation of Perth, was recently opened at Burghmuir, two miles from Perth, by Lord Provost Dewar. The reservoir is erected at an elevation of 320ft., which is an altitude sufficient to supply all the higher districts round the outskirts of the city for many years to come. The size of the reservoir is 121ft. square by 21'9ft. deep. The reservoir, when full, holds 1,956,084 gallons, being 117,300 gallons more than the existing three reservoirs hold when full. The Lord Provost, in turning on the water, remarked that it was the intention of the Water Commissioners to extend and improve the other three reservoirs, so that in dry weather there would be no difficulty in getting a proper supply for the wants of the town.

MR. EDMUND HOWL, engineer and general manager of the South Staffordshire Mines Drainage Commission, reporting on the progress of the engineering scheme for unwatering the large area of coal submerged in the Tipton district, states that the heading in the new mine coal referred to in his last report was driven in the eye pillar for 25 yards, and the pound of water outside communicated with by means of boreholes. A large quantity of water was run off during a period of two or three days, and the pressure then not being great the heading was continued through into the hollows. He examined the place, and was able to crawl a considerable distance up and into the old workings of the new mine coal. He traced the water upwards, and satisfied himself that it was travelling in the upper portion of the new mine rocks, and not in the base of the old workings themselves. Headings have now been made in this shaft connected with the pound in the bottom coal, the fireclay coal, and the new mine coal, and the principal flow is now in the rock above the new mine coal, which is the highest measure of the three. The effect on the pound has been to lower the water at Moxley, and Herberts Park, Darlaston, altogether nearly 6ft., the measurements last week showing a reduction of only 6in., and this week no reduction whatever. The heading in the new mine coal was next bricked up to prevent any sudden influx of water and the flow, amounting to over one million gallons per day, conducted in pipes to the bottom of the shaft. The level driving in the direction of Moxley old pumping engine was then resumed, and this has now reached a point 110 yards from the Bradley Lodge pit, and is being pushed forward day and night with all speed. The measures are still slightly rising, the holing being in a thin seam of coal below the ironstone balls, and six or seven feet below the bottom coal holes. Mr. E. B. Martin, reporting on the surface works, says that the increasing number of galvanising works leads to much complaint that the deposit on land of acid, or acid washings, threatens injury to clay and coal mines, and the discharge of the same into streams is a great nuisance to those below.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Aug. 20	Buckingham—Casual Wards	Guardians	T. B. Hearn, Clerk, Buckingham.
" 20	Carlow, Ireland—Additions, &c., to Asylum	Commissioners	Board of Control, Custom House, Dublin.
" 20	Great Yarmouth—Residence, The Park	H. D. Sayers	C. G. Baker, Town Hall-chambers, Great Yarmouth.
" 20	Winwick Hall, Lancs.—Lunatic Asylum	Board	F. C. Hulton, Clerk, County Offices, Preston.
" 21	Croom, Ireland—Church Boundary Wall, &c.		Moriarty, Croom.
" 21	Salisbury—Additions to Workhouse	Guardians	J. Harding and Son, Canal, Salisbury.
" 21	Cardiff—Reglazing and Reslating	Guardians of Union	E. Seward, Queen's-chambers, Cardiff.
" 23	Colchester—Factory	J. Kavanagh	C. E. Butcher, 3, Queen-street, Colchester.
" 23	Derby—Brickwork to Refuse Destructor Cel's	Corporation	Borough Engineer, Babington-lane, Derby.
" 23	Redruth—Two Semi-detached Villas	R. Dunn	H. W. Collins, Fearyn-street, Redruth.
" 24	Everton—Chimney Shaft at Refuse Destructor	Corporation	City Engineer's Office, Municipal-buildings, Liverpool.
" 24	Halifax—Brass Foundry, &c.		M. Hall, 29, North-gate, Halifax.
" 24	Trimdon Grange, Durham—Chapel Enlargement		W. R. Woodhead, Trimdon Grange, Trimdon.
" 24	Bexley Heath—Repairs to Church Tower	Committee	J. Russell Wilmore, Hon. Sec., Bexley Heath.
" 25	Bridgend—Temporary Block at Asylum	St. Olave's Guardians	Giles, Gough, & Trollope, 28, Craven-st., Charing Cross, W.C.
" 26	London, E.C.—Union Offices, &c.	Commissioners	Newman and Newman, 31, Tooley-street, E.C.
" 26	Cork—Temporary Buildings, Asylum	Corporation	Secretary, Board of Control, Custom House, Dublin.
" 26	Kingston-on-Thames—Extension of Buildings	Cameron and Co., Limited	Borough Surveyor, Clatterton House, Kingston.
" 26	Stainton-in-Cleveland—Rebuilding, &c., Backsmiths' Arms Inn		W. H. Linton, Architect, Exchange, Stockton-on-Tees.
" 26	Swansea—Warehouse on Victoria Wharf	Trustees	A. O. Schenk, Engineer, Harbour Offices, Swansea.
" 27	Mardy and Merthyr Vale, Glamorgan—Police Stations	County Council	T. M. Franken, County Clerk, Westgate-street, Cardiff.
" 27	Llanfihangel Gneu'r-glyn—Dwelling House	Capt. D. Williams	G. Jones and Son, 17, George-street, Aberystwyth.
" 27	Llanbadarn—Schoolroom		J. H. Williams, Quebec-road, Llanbadarn Fawr.
" 28	Bournemouth—Church Tower and Steeple		T. Stevens, Richmond-chambers, Bournemouth.
" 28	Belfast—House, Antrim-road		J. A. Hanna, 102, Donegal-street, Belfast.
" 28	Cardiff—Truant Industrial School	School Board	W. H. D. Caple, 1, St. John's-square, Cardiff.
" 28	Charlton Kings, near Cheltenham—School Buildings	School Board	J. Villar, 1, Cambray, Cheltenham.
" 30	Dewsbury—Twenty-eight Houses, &c.	Pioneers' Industrial Society, Limited	Holtom and Fox, Westgate, Dewsbury.
" 31	Bristol—Alterations to Asylum	Board	H. R. Withycombe, Council House, Bristol.
" 31	Salisbury—Sorting Office	H.M. Commissioners of Works	13, Whitehall-place, S.W.
" 31	Plumstead—Walling, &c., round Cemetery	Parish Burial Board	H. H. Church, William-street, Woolwich.
" 31	Willessey, near Broadway, Evesham—Converting Cottage to Chapel	Wesleyan Trustees	Wesley Chapel House, Evesham.
Sept. 11	Llanfihangel-y-Creuddyn—Restoration of Church Tower	Restoration Committee	J. P. Evans, Vicarage, Llanfihangel-y-Creuddyn.
" 20	Winwick—Asylum	Lancashire Asylum Board	J. Beaman, Delph Farm House, Winwick.
No date.	Alverthorpe, Wakefield—Latrines to Board School		E. Wright, Architect, Silcoates.
"	Ashton-under-Lyne—Stables, &c.		J. H. Turner, Margaret-street, Ashton-under-Lyne.
"	Audenshaw—Rebuilding Liberal Club		J. H. Burton, 2, Guide-lane, Hooley Hill.
"	Batley—Five Villa Residences	J. Blackburn	W. Anstock, Architect, Leeds.
"	Belfast—Nine Houses, Stores, &c.		D. M. Cooper, 47, Donegal-place.
"	Belfast—Two Houses, Wellington Park		Forman and Aston, Queen's-bldgs., Royal-avenue, Belfast.
"	Bradford—Ice Factory and Storage Rooms, &c.	Clear Ice and Cold Storage Company	F. Holland, 11, Parkinson-chambers, Hustlergate, Bradford.
"	Brixworth, Northants.—Infants' School		J. Ingman, Abington-street, Northampton.
"	Burnley—Stables, Coach-house, &c., at Reedley	J. Grimshaw, Esq., J.P.	C. Parsons, 9, Grimshaw-street, Burnley.
"	Church Gresley, Burton-on-Trent—Wesleyan Chapel		R. Clarke, Prudential-buildings, Nottingham.
"	Clitheroe—Church Alterations		McCall and Robinson, 7, Thackett's-street, Blackburn.
"	Leeds—Plastering to Eight Houses, Roundhay-road		G. Lax, Harehills-lane, Leeds.
"	Leeds—Alterations to 134, Burley-road	W. W. Sleight	A. Neill, 18, Cookridge-street, Leeds.

COMPLETE LIST OF CONTRACTS OPEN—*continued.*

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Leeds—Three Houses on Victoria Park, Kirkstall ...	.....	J. Bexon and Son, 56, Briggate.
"	Mossley, Lancs.—Alterations to National Schools ...	.....	J. H. Burton, 2, Guide-lane, Hooley Hill.
"	Newton-in-Cartmel—Joinery, Plumbing Work, &c. ...	H. Bispham ...	H. Bispham, Newton-in-Cartmel.
"	Northampton—Additions, &c., to British School ...	School Board ...	W. Hull, 12, St. Giles'-street, Northampton.
"	Queenstown, Cork—Alterations to 13, Beach ...	Swanton and Co. ...	13, Beach, Queenstown.
"	Sheffield—Rebuilding Heeley and Sheffield House, Gleedless ...	.....	W. T. Rhoden, Buckingham-chambers, St. James's-street, Sheffield.
"	Middlesbrough—Mission Building, Queen's-square ...	.....	J. M. Bottomley, 28, Albert-road, Middlesbrough.
"	London—Detached Residence ...	.....	E. F. Taylor, 70, Chancery-lane, W.C.
"	Sedgefield—Concrete Retaining Walls ...	Asylum Committee ...	W. Crozier, County Surveyor, Durham.
"	Chatham—Rebuilding Alexandra Inn ...	Budden and Biggs' Brewery ...	Boucher, Architect, High-street, Rochester.
"	Clacton-on-Sea—Shops, Residences, &c., Wellesley and Carnarvon-roads ...	.....	J. W. Martin, Station-chambers, Clacton-on-Sea.
ENGINEERING—			
Aug. 20	Buckingham—Steam Heating, &c., at Workhouse ...	Guardians ...	T. B. Hearn, Clerk, Buckingham.
" 23	Belfast—Electric Lighting Plant ...	Harbour Commissioners ...	G. F. L. Giles, Harbour Engineer, Belfast.
" 23	Romford—Reservoir, Pumping Station, &c. ...	Rural District Council ...	J. Simmons, 1, Prince's-street, Doncaster.
" 23	Sunbury-on-Thames—Engine House, &c. ...	Urban District Council ...	J. Austie, 17, Victoria-street, S.W.
" 24	Walthamstow—Warming School ...	School Board ...	W. A. Longmore, 7, Great Alie-street, Whitechapel.
" 25	Neath—Water Extensions ...	Rural District Council ...	W. E. C. Thomas, Engineer to Council.
" 27	Brighton—Groynes, &c., on Foreshore ...	Town Council ...	F. J. Tillstone, Town Clerk, Brighton.
" 28	Craiova—Water Supply ...	Mayor, &c. ...	The Mairie, Craiova, Roumania.
" 30	Derby—Dynamics and Engine ...	Corporation ...	H. F. Gadsby, Town Clerk, Derby.
" 31	Cairo—Iron Bridge ...	Minister of Public Works ...	Public Works Department, Cairo.
" 31	Paignton, S. Devon—Sea Walls, Slipways, &c. ...	P. E. Singer ...	R. Bradon, 165, Manor-street, Clapham, London, S.W.
Sept. 5	Tiverton—Reservoir, &c. ...	Rural District Council ...	Dymond and Parsons, Bampfylde House, Exeter.
" 6	Ledbury—Reservoir and Water Mains ...	Urban District Council ...	J. Garrod, Clerk to the Council, Ledbury.
No date.	Leeds—Sinking Well at Searcroft ...	School Board ...	C. Fowler, 24, Basinghall-street, Leeds.
"	Tiverton, near Bath—Heating and Ventilation of Schools ...	School Board ...	Silcock and Reay, Octagon-chambers, Bath.
"	Aberdare—Sinking Shaft at Cwmaman Colliery ...	Rural District Council ...	W. J. Heppell, Cwmaman Colliery, Aberdare.
"	Newark—Bridge Works ...	.....	T. Vickers, C.E., District Surveyor, Newark.
"	Dublin—Heating Training College ...	.....	The Principals, Marlborough-st. Training College, Dublin.
FURNITURE—			
Aug. 21	Brentford, Essex—Furniture for Visitors ...	County Asylum ...	W. H. Roscoe, Clerk of Asylum, Brentwood.
" 30	Plymouth—Dual Desks for Schools ...	School Board ...	E. C. Cook, 18, Princess-square, Plymouth.
IRON AND STEEL—			
Aug. 20	London, E.C.—Bridge Chairs and Coach Screws ...	South Behar Railway Company, Ltd. ...	T. Baker, Secretary, 44, Finsbury-circus, E.C.
" 20	Sheffield—Tram Rails, Fishplates, &c. ...	Tramways Committee ...	C. F. Wike, City Surveyor, Sheffield.
" 30	Hendon—Iron Fencing and Gates ...	Urban District Council ...	S. S. Grimley, Council Offices, Hendon.
" 31	Salcoats, Scotland—Steel Galvanised Buckets ...	Commissioners ...	J. Miller Surveyor, Salcoats.
No date.	Southwark—Sewer Ironwork (Triennial Contract) ...	St. George-the-Martyr Vestry ...	J. A. Johnson, 81, Borough-road, S.E.
PAINTING—			
Aug. 30	Stockton-on-Tees—Painting, &c., to Cemetery ...	Corporation ...	Borough Engineer, Stockton-on-Tees.
" 31	Chelmsford—Painting, Graining, &c. ...	Essex Standing Joint Committee ...	Clerk, Shire Hall, Chelmsford.
No date.	Hulme, Manchester—Painting Town Hall ...	Committee ...	J. Rison, Town Hall, Manchester.
ROADS—			
Aug. 21	Dewsbury—Street Works ...	Corporation ...	Borough Surveyor, Town Hall, Dewsbury.
" 21	Llandrindod Wells—Road and Sewer ...	Radnorshire Governing Body ...	R. E. Moseley, Clerk to Governing Body, Llandrindod Wells.
" 21	Halifax—Limestone Asphalted in Park ...	Parks Committee ...	E. R. S. Escott, Borough Engineer, Halifax.
" 23	Slieve, Herts—Broken Granite ...	Urban District Council ...	Council's Offices, Stevenage.
" 23	Sunbury-on-Thames—Road Works, &c. ...	Urban District Council ...	J. Austie, 17, Victoria-street, S.W.
" 23	Coventry—Granite Chippings ...	Corporation ...	J. E. Swindlehurst, St. Mary's Hall, Coventry.
" 24	Hastings—Cartage of Unbroken Stone ...	Rural District Council ...	A. R. Inskipp, 11, Wellington-square, Hastings.
" 24	Southwam, Yorks—Supply of Dross ...	Urban District Council ...	Godfrey, Rhodes, and Evans, Commercial Bank-chambers, Halifax.
" 26	Middlesbrough—Concrete Flags and Kerbs ...	Streets Committee ...	F. Baker, Borough Engineer, Middlesbrough.
" 27	London, N.—Road Works at Wood Green ...	Urban District Council ...	C. J. Gynon, Surveyor, Town Hall, Wood Green.
" 28	Heywood, Lancs.—Road Works ...	Urban District Council ...	J. A. Settle, Borough Surveyor, Heywood.
" 28	New Malden—Road Materials ...	Urban District Council ...	T. V. H. Davison, Glebe Side, New Malden.
" 30	Hendon—Road Works and Materials (Two Contracts) ...	Urban District Council ...	S. S. Grimley, Council Offices, Hendon.
No date.	Liswerry, Mon.—Road and Pipe Sewer ...	.....	Seddon and Carter, Bank-buildings, St. Mary-st., Cardiff.
SANITARY—			
Aug. 21	Longford, Ireland—Drainage Works ...	Sanitary Authority ...	H. M'Cann, Clerk, Workhouse.
" 21	Lancaster—Sewerage Works ...	Rural District Council ...	J. E. Parke, Post Office-chambers, Newcastle.
" 23	Hornchurch—Drainage Outfall Works ...	Romford Rural District Council ...	J. Simmons, 1, Prince's-street, Doncaster.
" 23	Devonport—Lavatories at Royal Sailors' Home ...	.....	H. G. Luff, 64, Chapel-street, Devonport.
" 24	Blackpool—Sewers, &c. ...	Corporation ...	J. Wolstenholme, Borough Engineer, Blackpool.
" 30	Tendring, Essex—Sewers, &c. ...	Rural District Council ...	F. Beesley and Son, 11, Victoria-street, Westminster.
" 31	Witley, Oxon.—Sewerage Works ...	Urban District Council ...	C. Nicholson Lailey, 16, Great George-street, Westminster.
" 31	Streatham and Tooting—Scavenging ...	Wandsworth Board of Works ...	H. G. Mills, Clerk, East Hill, Wandsworth.
Sept. 1	King's Lynn—Outfall Sewer ...	Corporation ...	E. J. Silcock, Borough Engineer, King's Lynn.
" 1	Wembley—Sewerage Works, &c. ...	Urban District Council ...	C. L. Whitehead, jun., Engineer, Council Offices, Wembley.
Sept. 4	Bakewell—Sewerage Works, &c. ...	Rural District Council ...	Sterling and Swann, Town Hall, Chapel-en-le-Frith.
" 7	London, E.C.—Sewerage Works ...	Shoreditch Vestry ...	J. R. Dixon, Surveyor, Old-street, E.C.
" 20	Wembley—Sewerage Works, &c. ...	Urban District Council ...	C. L. Whitehead, jun., Engineer, Council Offices, Wembley.
No date.	Salford—Removal of Sludge from Sewage Works ...	Corporation ...	Borough Engineer, Town Hall, Salford.
"	Leeds—Re-drainage to Four Houses ...	.....	F. Mitchell, 71, Albion-street, Leeds.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 31	Bury, Lancs.—Art Gallery and Public Library ...	£75, £50, £25 ...	J. Haslam, Town Clerk, Bury.
" 31	Wadhurst, Sussex—Designs for Memorial Hall, Club, &c. ...	£20, £10 ...	W. Larcumb, Wadhurst.
Sept. 1	Ludlow—Electric Lighting Scheme ...	£20 ...	Corporation.
" 1	New Ferry, near Birkenhead—Sewage System ...	£50, £35, £20 ...	Lower Bebington Urban District Council.
" 14	Ipswich—Design for Higher Grade School (Local) ...	.....	J. Hepburn Hume, Clerk to School Board, Ipswich.
" 16	Skipton—Designs for Cottage Hospital ...	£15, £5 ...	Corporation.
" 22	London, S.W.—Designs for Public Baths ...	£100, £50, £25 ...	Battersea Vestry, Lavender Hill.
" 25	Blaenar Festiniog, Merioneth—Plans, &c., for County Police Buildings ...	£15 15s. ...	Standing Joint Committee.
Oct. 1	Morecambe—Plans, Estimates, &c., for Sewage Scheme ...	£100 ...	Urban District Council
" 8	Leeds—Designs for Meat Market and Abattoir ...	£100, £50, £25 ...	Corporation.
Nov. 30	Mexico—Legislature Palace ...	15,000 dol. Mex. ...	Secretary, Public Works, Mexico City.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c. ...	£500, £300, £200 ...	Corporation.
1898.			
Jan. 1	Newcastle-on-Tyne—Infirmary (Local) ...	(No First.) £150, £100, £50 ...	Secretary, Building Committee, Newcastle.
" 30	Carlton, Victoria—Children's Hospital ...	£100, £50, £25 ...	J. Nicholson, Hon. Sec., Pelham-street, Carlton, Australia.
Feb. 28	New York—Model Sun Dial in Plaster ...	500 dol., 250 dol. ...	E. National Sculp. Soc., 215, West 57th-street, New York.
No date.	Brighton—Artisans' Dwellings (Local) ...	£75, £25 ...	F. J. Tillstone, Town Clerk, Brighton.
"	Boscombe—Hospital Enlargement, Shelley-road ...	.....	J. Pratt, 126, Christchurch-road, Boscombe.
"	Tottenham—School Board Offices ...	.....	J. F. Adams, Clerk, School Board Offices, Tottenham, N.
"	Fylde, Lancs.—Workhouse ...	£150, £100, £50 ...	Union Guardians.

Views and Reviews.

SHIPPING MARKS ON SAWN AND PLANED WOOD.

The 1897 edition of the Timber Trades Journal list of shipping marks on deals, battens, boards, timber, joinery, and other goods exported from Sweden, Norway, Finland, Russia, Germany, and Canada, has just been issued. Each section has been most completely worked out and rendered quite up-to-date by the inclusion of the latest marks employed. The list is comprehensively arranged—the work of reference is reduced to a minimum—with the English and French classifications, compiled from information supplied by shippers, agents, and other authentic sources. The work also includes, among other features, a list of shippers, agents, and brokers engaged in the trade throughout the United Kingdom, the Continent, and the Colonies, together with a series of useful and carefully-prepared charts showing timber ports and sub-loading places. To those connected with the timber trade the revised list of shipping marks should prove of service.

"Shipping Marks on Sawn and Planed Wood," Timber Trades Journal List. William Rider and Son, Limited, London, E.C. Price 6s. and 7s. 6d.

TOURIST GUIDE TO THE CONTINENT.

To those about to undertake a tour in Holland or Germany, Belgium or Switzerland, we would recommend the eighteenth annual issue of the Great Eastern Railway Company's "Tourist Guide to the Continent," an advance copy of which lies before us. Such practical information as is necessary to the tourist is fully set out; but the great charm of this little book lies in the interesting manner in which the various routes and objects of interest thereon are described. The book possesses quite a wealth of architectural illustration, and to anyone in the Profession, whose holiday jaunts will take him into the picturesque Continent coming within the scope of the present guide-book, the work should be especially valuable. A tour in Holland, with special reference to the country's quaint old capital, is first described, and then North Germany, including Berlin, Hanover, Hildesheim, and Brunswick; South Germany, with illustrations of the famous castles and buildings on the banks of the Rhine; Belgium, with special reference to Antwerp and Brussels, and Switzerland, with all its scenic glory, are all in turn the subject of a light and lucid pen. Excellent facilities are offered by the Great Eastern Railway Company.

"Tourist Guide to the Continent," Issued by the Great Eastern Railway Company. Price 6d.

THE ART OF TRACING.

The art of tracing has all along enjoyed entire immunity from the strictures of the authoritative writer. At least we know of no work dealing exclusively, or at any length, with the subject. Numerous books written as guides to architectural draughtsmen have appeared from time to time, and now, under the title of "The Art of Tracing," we welcome a none-too-bulky work by Mr. E. W. Fritchley, Architect, of Bombay. An art, apparently so simple, yet yields ample scope for failure; much needs to be learned, and it is with the view of revealing the artistic possibilities of a limited field that Mr. Fritchley has brought out his treatise. "I am fully convinced," writes the author, "that a studious practice of architectural tracing is in itself eminently calculated to qualify one for more important spheres of duty in an Architect's office." Here is a helpful stepping-stone to the architectural assistant! Of course it by no means follows that the hand that deftly moves over the tracing-paper will give shape and form to a dream in bricks and mortar conceived by its owner, but there is no doubt that much can be learnt through the medium of tracing, and Young Hopeful, therefore, should not look upon this branch of his Art as a mere mechanical encumbrance. Mr. Fritchley's book is

divided into two parts; the first treats of materials, and the second of workmanship. After giving many useful hints on the use of tracing-cloth, Indian ink, drawing pen and ink bow, &c., the author proceeds to discuss in a simple and practical manner the question of proportion and effect, figures and letters, stencils and stencilling, colouring of plans, sections, and elevations, and in the concluding chapters imparts some useful information on the difficulties commonly experienced in tracing—the removal of ink lines and blots and repairing of damaged cloth for instance. The book, however, is but an elementary treatise on the art, and will, we hope, be followed by a second and more advanced volume.

"The Art of Tracing," By E. W. Fritchley, Architect. Education Society's Steam Press, Bombay.

GLASGOW TECHNICAL COLLEGE CALENDAR.

The wide and comprehensive range of subjects coming within the scope of the Glasgow and West of Scotland Technical College is strikingly shown in the octavo volume modestly termed "Calendar" for the session 1897-98. The College curriculum embraces mathematics, natural philosophy, chemistry, drawing, engineering, Architecture, and building construction, &c., the object of the institution being to afford a suitable education to those who wish to qualify for following an industrial profession or trade, and to train teachers for technical schools. We have previously acknowledged the success of the architectural classes under Professor Gourlay, who, with his staff of assistants, always earn honourable distinction at each examination. The courses are arranged to supplement the training acquired by the student in the office, and to prepare him for the examinations of the Royal Institute of British Architects and the Science and Art Department. The junior course deals with Classic and Mediæval Architecture, and the senior with Early Christian Mediæval and Renaissance Architecture. In addition, there is also connected with the College an architectural studio—Mr. Thomas S. Fraser, instructor—a measuring and sketching class, whilst lectures and classes are held on building construction and design, an interesting and instructive feature of the latter being a series of weekly visits to buildings in course of erection. Plumbing, sanitation, &c., also find a place in the courses of instruction.

"The Glasgow and West of Scotland Technical College Calendar for the Session 1897-98." Robert Anderson, 22, Ann Street, Glasgow.

A MONUMENT to Otto von Guericke, the inventor of the air-pump and the "Mageburg Hemispheres," is about to be erected at Odensee, near Altona. He died there in 1686, and hitherto no memorial of him has existed.

MR. J. T. MARSH, R.E., one of the inspectors of the Local Government Board, recently conducted an inquiry at the Town Hall, Newport, as to an application by the Newport Town Council to borrow £31,000 for an extension of the electrical installation.

At the monthly meeting of the Newport Borough Council, it was decided that it would be desirable to acquire some property adjacent to the Town Hall with the view to carrying out extensions. The price asked for the property is £21,000.

THE Secretary of State for Foreign Affairs has received a despatch from the Acting British Consul-General at Sofia, stating that the municipality of that town invite tenders for—(1) the supply of electric currents to light the streets as well as public and private buildings in the town and the supply of electric power; and (2) the construction and working of electric tramways in the town and suburbs. Tenders will be received for either or both of these undertakings at the offices of the municipality of Sofia up to September 22nd next, and will then be examined; but a final adjudication will be held on October 2nd if, in the interval, a reduction of 5 per cent. is offered on the tenders containing the most favourable terms. Such further particulars as have been received may be seen at the Commercial Department of the Foreign Office any day between the hours of 11 a.m. and 6 p.m.

IRON AND STEEL INSTITUTE.

THE autumnal meeting of the Iron and Steel Institute opened at Cardiff a day or two ago. In welcoming the members to Cardiff, the Mayor recalled the fact that the Institute had visited many of the largest towns and cities of the United Kingdom, as well as Continental countries, and had once at least visited the great city of New York. But nowhere had they met with a more hearty welcome than that he offered them on behalf of the town, the Corporation, and himself. The reading of the papers was then proceeded with, the first being a paper by Mr. Thomas Wrightson on "The Application of Travelling Belts." "The Manufacture of Tin Plates" was the subject of the next paper, the contributor being Mr. George B. Hammond, of Penarth. In the course of his essay he said that during the last fifteen years a great revolution had taken place in the trade by the general adoption of mild steel as a substitute for iron bars, and the tin-plate trade proper might now be considered to commence with the rolling of the steel bar into black plates. Another paper submitted was one by Mr. E. D. Campbell, of Ann Arbor, Michigan, on "The Diffusion of Sulphides Through Steel," and in his absence it was taken as read. The first paper read on the second day was contributed by Professor Honore Ponthiere, of the University of Louvain, who took for his subject, "Thermal-chemical Study of the Refining of Iron." The next paper was given by Mr. Ernest Henry Laniter, of Wigan, who dealt with the subject of carbon and iron. He said so much valuable work had been done on the subject during the last few years, and so much had been added to our knowledge, that it might seem to the casual observer almost superfluous to endeavour to throw new light on the problems connected with the relation of carbon to iron. However, those who had followed the subject freely admitted that very much remained to be learnt, and it had occurred to him that there were several directions, old and new, by the investigation of which additional information might be gained on this important subject. The directions which suggested themselves were: (1) the thermal treatment of iron and carbon; (2) the saturation point of iron with carbon by fusion in contact with excess of carbon; (3) the saturation point of iron with carbon by heating without fusion in contact with excess of carbon; (4) the etching of pure carbon-iron alloys at red heat, in order to ascertain their structure by means of the microscope at that temperature.—After other papers had been read, the president proposed votes of thanks on behalf of the Institute to the Mayor of Cardiff, the Institute of Engineers Local Reception Committee, the proprietors and managers of the various docks and works thrown open to the inspection of members, and the votes were heartily accorded. On the concluding day the members were taken by steamer from Newport to inspect the docks there and afterwards landed at Barry, where they were entertained by the Barry Railway and Dock Company. They were shown over the Alexandra and other docks, the whole of which are the property of Lord Tredegar and Sir George Elliot.

THE Sheffield Corporation (says a Sheffield correspondent) is about to introduce the electrical overhead system on all the present tramway routes within the city, and also to make extensions to many of the popular suburbs.

THE session of the Crystal Palace Company's School of Practical Engineering was brought to a close recently, when Mr. G. A. Goodwin (past president of the Society of Engineers) distributed the certificates gained by the students. Mr. Goodwin said he had been much impressed with the large amount of work which yet remained to be done by the skill of engineers. It was an indisputable fact that English engineers were the pioneers in the profession, and he believed they would ever continue to hold their own in design and originality, and in substantial workmanship.

TECHNICAL EXAMINATION RESULTS.

THE CARPENTERS' COMPANY.

SUBJOINED will be found the complete list of the winners of the medals, &c., presented by the Carpenters' Company to students attending the day and evening classes conducted under the auspices of the Company in conjunction with the Council of King's College. All prizes of money are given in books to the value of the prize won:—

Architecture and Building Construction.—Day classes, first year: C. W. Myddelton, silver medal and £2; A. E. Ruffhead, bronze medal and £1; C. S. Sparrow and P. B. Le D. Tree, certificates of distinction; F. E. L. Hurst, S. L. Walkden, and E. H. B. Clark, certificates of approval. Second year: A. J. West, silver medal and £2; W. Shelley, bronze medal and £1; C. F. R. N. Weston, W. Marchmont, H. W. Minnitt, and N. B. Rosher, certificates of distinction; H. J. Mellis and T. R. Renfree, certificates of approval. Third year: H. C. Bishop, gold medal and £3; E. F. Knight, silver medal and £2; G. A. Turner, bronze medal and £1.

Quantities, Specifications, and Estimates.—A. F. Vigor, certificate of approval.

EVENING CLASSES.

Architectural History.—F. G. Pain, silver medal and £3; C. W. Beaumont, bronze medal and £2; W. G. Trew, certificate of distinction and £1. **Building Construction:** S. A. Switzer, silver medal and £3; C. J. T. Dadd, bronze medal and £2; J. Gough, certificate of distinction and £1; T. Graves, A. Keene, and C. Phillips, certificates of distinction; A. Harrington, W. Drake, and F. G. M. Chancellor, certificates of approval. Medal given annually by the present Lord Mayor for sanitary building construction: A. Carter. **Quantity classes:** J. Kent, certificate of distinction and £3; S. A. Switzer, certificate of distinction and £2; T. Graves, certificate of distinction and £1; B. A. Keene, certificate of distinction. **Constructional drawing:** J. Gough, certificate of distinction and £3; W. Drake, certificate of distinction and £2; C. J. Dadd, certificate of distinction and £1; C. French and C. Phillips, certificates of distinction; A. Harrington, F. J. Bishop, T. Pilgrim, and F. Barnes, certificates of approval. **Architectural studio, evening:** J. G. Wiles, gold medal; P. C. Blow, silver medal; H. C. Bishop, H. Gloyne, and W. Marchmont, bronze medals and £1; M. Zimmerman, certificate of distinction. **Wood-carving.**—Mr. Howard's class: Miss T. Carpenter and T. Ainsworth, silver medals and one year's scholarships; L. A. Waldron, bronze medal and two terms' scholarships. Kensington, Miss E. Leadbitter, highly commended. Mr. Bull's class: John Dunn, silver medal and two years' scholarship; A. J. South, bronze medal and one year's scholarship; A. C. Martin, highly commended. —The conversation, at which the prizes will be distributed, has been fixed for Thursday, 30th prox., at King's College, when Dr. Robertson will be supported by Mr. J. H. Gibbins, Master of the Carpenters' Company, and others. There is to be an exhibition of some of the work executed, and a very instructive gathering is anticipated. It should be added that the Carpenters' Company offer a scholarship, which is entirely open, to be competed for at the examination held at the end of September.

A DAMAGED PIER.

EXTENSIVE SCHEME OF RE-CONSTRUCTION.

THE damage to the North Pier, Tynemouth, and the best mode of dealing with it have been referred by the Tyne Commissioners to experts of the very highest standing in the engineering profession—viz., Sir J. Wolfe Barry, and Messrs. Coode, Son, and Matthews, of London. The joint report gives a full and complete history of the pier work from its inception to the present time, and also pays a very high tribute to the personal worth of the late Mr. Messent, the engineer to the Tyne Commissioners, who was associated with the execution of these great works from their commencement, extending over a period of forty years. In the beginning of last April the above-named experts made a careful examination of the North Pier, from which it became evident that before a definite opinion could be expressed as to the proper mode of procedure to be adopted for making good the damage, and placing the pier in a secure and satisfactory condition, further important particulars were required, not only as to the depth of the rubble mound on which the masonry blocks had been founded, but also as to the nature, thickness, and

CHARACTER OF THE STRATA

lying between the base of the mound and the surface of the hard shale which it was believed existed beneath the pier. In order to procure the last-named information it was found necessary to make a series of borings through the masonry, the rubble base, and the underlying strata—a work of great difficulty, and occupying considerable time. Although from the first the urgency of this matter was fully felt, it was considered that, in the absence of the information which would be secured by these borings, the report would not be of such a character as the importance of the case demanded. The North and South Piers of the Tyne were designed by the late Mr. Walker; the plans of the first portion of the North Pier were prepared in 1855, and the work was commenced in the following year. The first contract provided for a length of 1400ft., and the plans of the second portion for a length of 1300ft. These were prepared mainly by Mr. Walker, though not completed at the time of his death. The total length of the pier, as constructed, is 2907ft. The outer portion, including the head and lighthouse, were erected from plans prepared by the late Mr. Messent.

THE GENERAL DESIGN OF THE PIER

comprehends a base (or mound) of rubble stone, carrying a superstructure of masonry. The latter consists of longitudinal sea and harbour walls, connected by cross-walls, the enclosed spaces (or pockets) being filled with rubble hearing for the first length of 1400ft., and with cement concrete, either blocks or mass work, for the remaining length. The pier is 37ft. wide at coping level, and 50ft. wide at low-water mark. The width of the quay at coping level is 18½ft., and on the seaward side of this quay there is a raised promenade 13ft. in width, with a parapet of 3ft. 6in. thick for a length of 2575ft., and 5ft. thick beyond that point. The quay level of the pier is 10ft. above high-water of ordinary spring tides, and the top of the parapet is 24ft. above high-water. The tide at the entrance to the Tyne rises 15ft. The sea and harbour walls consist of blocks of cement concrete or of rubble built with cement mortar, faced with limestone ashlar, the promenade wall being faced with coursed rubble freestone. The harbour face of the last-named work contains arches or alcoves, each 15ft. in width, placed 35ft. apart. Above low-water all the blocks were set and grouted in cement. Below that level the blocks were laid without cement. The foundations of the second length, under the plans of 1863, were to have been laid at levels varying from 3ft. 4in. to 12ft. below low water. As the works advanced, however, it was found desirable to carry the foundations to a lower level. Consequently, along the sea-

ward face the blocks were laid at increased depths. The foundation courses on the seaward side are protected by foreshore blocks of concrete weighing thirty-six tons each, resting on beds which are approximately level, excavated in the rubble base. At 2200ft. from the west end these blocks were laid 12ft. below low water at ordinary spring tides, this depth being gradually increased, as the work advanced eastwards, to 23ft. at the outer end of the head. Except for some damage which was caused to the pier by the gale of December, 1867, commencing at 1500ft. from the west end, the structure appears to have withstood the heavy storms by which the N.E. coast is visited in a fairly satisfactory manner up to the end of the year 1893. The first note of anxiety was sounded at the end of that year, when the mammoth crane was washed off the pier. But no damage which could at that time be detected had been caused to the permanent work. In the spring of 1893 and 1894 it was found that fifty lineal yards of the foreshore blocks had been displaced, and some partial movement had taken place in a further length of seventy-three yards eastwards. So far as it then could be ascertained the structure had not otherwise suffered. In July, 1894, Mr. Messent reported to the Tyne Commission that a length of 130ft. of the foundations of the sea-wall had been exposed, and in some cases undermined, but without causing settlement or injury to the permanent work. The hollow spaces were filled with concrete in bags, and large quantities of scrap chain were placed outside as a protection until the foreshore blocks could be replaced. In the spring of 1896 it was ascertained that the winter storms had further

DISTURBED THE FORESHORE BLOCKS

and had undermined a portion of the foundations of the sea wall, drawing out a considerable number of the face-blocks below low water. In January, 1897, severe storms caused still further damage to the pier, a length of 110ft. of the seaward face falling, and the hearing being partially removed up to the back of the harbour wall. Early in February this year further gales occurred. These carried away the standing portion of the last-named wall for a length of 17ft., causing a clear gap in the structure to that extent. Subsequently this breach was widened by the action of the sea. One of the most important matters which came on for early consideration was the possibility of adopting immediate measures to prevent further damage to the structure by the gales of next winter. At a consultation with the Commission early in April the experts gave it as their opinion that it was entirely impracticable to effect such repairs, and they said that, had measures been adopted in the early spring with a view to the underpinning and strengthening of the existing work, they did not hesitate to state emphatically that such repairs would have resulted in disaster, and could not have secured the work from further damage during the coming winter. As the matter now stands, there is every reason to anticipate that the undermined work will fall on the occurrence of the next heavy gale, and that there is no possibility of averting an extension of the breach during the approaching winter.

THE FAILURE OF THE PIER WORK

is unquestionably due to one cause only—viz., to the insufficient depth below low water at which the foundation blocks were laid on the rubble base. The portion of the structure which has been breached and undermined was founded at the level of 21ft. to 24ft. below low water. The design prepared in 1862 contemplated a depth for the foundations of 12ft. below low water. Therefore the changes which have been made in carrying out the work, in the lowering of the foundations and the protection of the footings by foreshore blocks, and in the substitution of cement concrete for lias lime for the hearing have been in the right direction, although, as experience has now shown, these precautions were not carried sufficiently far with regard to the depth at which the foundation blocks had been laid. Experience has shown in recent years that the

A NEW Conservative Club, situate in Victoria Street, Crewe, was recently opened.

THE foundation stone of a new Congregational Church in Farrar Street, Barnsley, was laid on Thursday week.

A NEW organ, presented by Mr. John Feeney, of the Moat House, Berkswell, for the Berkswell Parish Church, was recently dedicated by the Bishop of Worcester.

A NEW technical school for Handsworth is to be opened on September 29th. The tender of Messrs. Fisher and Co., amounting to £370, for the supply of furniture and fittings for the school has been accepted.

disturbing action of the sea on rubble bases supporting structures in positions of great exposure such as that of the Tynemouth Pier, takes effect to a much greater depth than had been formerly supposed. The borings taken under the directions of the above engineers at a distance of from 2400ft. to 2840ft. from the west point show that shale is met with at from 38ft. to 43ft. below low water. From that point outwards good boulder clay is to be found under the head of the pier at about 44ft. below low water. The engineers report that they would not consider it prudent to recommend that the

FOUNDATIONS OF THE WORKS

should be placed at a higher level than 35ft. below low water, having regard to the exposure of the site and to adequate provision being made for the recoil of the sea from the face of the pier during gales. Such a level for the foundations would only be from 4ft. to 5ft. above the surface of the shale, and as it would be impracticable to found the work on the stratum of sand and mud overlying the shale, they have come to the conclusion that, in order to secure permanence for the length which has been damaged, including also the standing portion eastward of this and a short length landwards of the breach, the existing work should be removed and replaced by a new structure. The foundations of the head of the work have been laid at 27ft. below low water. The engineers do not consider such a level to be sufficient to ensure absolute immunity from damage during gales of extreme severity. Therefore, although no injury to the permanent structure of the pier-head itself has yet been sustained, and nothing more serious has happened to it than the displacement of some of the foreshore blocks, they are of opinion that it is necessary to carry the work down to the shale in order to make good the portions breached and undermined. It is estimated that the cost of removing the existing structure and *débris* from the fallen work, including excavation through the rubble base and the strata of sand and gravel, and of sand and mud underlying the same, founding the work anew on the shale bed and boulder clay, reconstructing the pier for the length of 750ft. with parapet, and re-building the pier-head and lighthouse, will be over £800,000. We understand that there is a very strong feeling in the minds of many members of the Commission that, whatever is done with respect to the above works, it shall be done by contract. The engineers themselves recommended this course in their interview with the Commissioners.

Up to the present time £1300 has been received towards the cost of the new wing for Lowestoft Hospital.

SIR MATTHEW WHITE RIDLEY, M.P., opened last week the two new wards which have been added to the Blackpool Hospital.

The memorial stone of a new Baptist Sunday School has been laid at Earlestown. The school, when completed, will cost about £560.

It is proposed by the Derbyshire County Council to build a new police station and lock-ups at Castleton. The site is at the entrance to the village from Sheffield.

At Douglas the new Church of St. Matthew's was recently opened. It was stated that £1500 was still required to completely finish the work of construction, and to make the Church, as was intended, perfectly free and open. Altogether the Church will cost £5000.

CHESTER CATHEDRAL was broken into one night recently and the contents of three offertory boxes stolen. Irreparable damage was also done to a handsome memorial stained glass window, erected in the north aisle to the Rev. Joseph Eaton, formerly Precentor of Chester.

It is stated that Mr. Tate intends to add very shortly to the capacity of the New British Gallery, as the rooms are already practically filled; and now that the Chantry Trustees have at their disposition such a splendid receptacle for their purchases they are sure to be inclined to spend their funds to their utmost extent.

Professional Items.

ABERDEEN.—Satisfactory progress is being made with the erection of the new Corporation lodging-house in East North Street, and in a couple of months the masons will have finished their part of the work. The whole of the front elevation of the building is completed, and is now the most prominent feature of the street, the bright new granite forming a striking contrast to the dingy aspect of the other houses. There is a frontage to the street of nearly 100ft., and the building rears itself to a height of almost 60ft. The principal doorway is surmounted by massive cornices, smoothly dressed. Overhead, on the crow-stepped apex situated above the doorway, are the city arms cut in granite, but this is the only attempt at ornament on the face of the building. Within, operations are not sufficiently advanced to give any idea of the ultimate appearance of the interior, but one thing already evident is that the various apartments will be spacious and well lighted. The whole building is to be of fireproof construction, and the iron joists on which the cement floors are to rest have now been placed in position. Not a trace of woodwork is to be seen in the frame of the house, the very lintels of the windows being of metal. The main portion of the lodging-house is ready for roofing, but some time will elapse before the remaining portions are covered.

ABERYSTWTH.—A new hotel, the Cambria, was opened a few days ago. It occupies a commanding position at the western end of the promenade, opposite the pier, and has been erected from the designs of Messrs. Ewen and J. Alfred Harper, Architects, of Birmingham, who have had to overcome many difficulties as regards the site. The hotel is built of native stone, in the Renaissance style of Architecture. The front elevation is relieved by an effective treatment of the entrance and windows, with massive freestone dressings, carved entablature, and finely-moulded cornices.

ARBROATH.—The new engine-sheds which have for some time past been in course of erection at Arbroath for the Joint Railway Company have now been completed and opened. The site of the new buildings is on the west side of the Arbroath and Forfar Railway in Dens Road. In order to secure sufficient space for the new sheds, a deep cutting, measuring at the south end about 26ft., had to be made in the side of the high-lying field opposite, which forms part of Cairnie Farm. This cutting has had to be flanked by a massive retaining wall, a portion of which is 9ft. 6in. in thickness. The wall has been built up to the level of the embankment, and at the end of Ogilvy Place it has been surmounted by another wall 6ft. high in order to shut off the ground and secure the safety of the public. The new engine-shed is about 190ft. long and 60ft. broad, the walls being 20ft. in height. The walls are built of red and white pressed bricks, with a base of Carnyllie freestone. Six bays of roofs run transversely from end to end of the building, and between each of twelve windows, which have semi-circular tops, there are inserted in the building on both sides plasters of red and white bricks, the latter adding considerably to the appearance of the building. Ventilators have been provided in the gables between the bays in the roofs, and smoke escapes are supplied at the apex of each roof. The roof is supported on five girders, each weighing four tons, placed at intervals across the building from wall to wall. In all about 20,000 cubic yards of ground have been excavated in connection with the works, and the new sheds, &c., have been put up at a cost of about £10,000. The contractors were Messrs. Howe and Son, Dundee, the sub-contractors being: Mason, Mr. Sheach, Dundee; plumber, Mr. D. Brown, Dundee; glaziers, Mr. Robert Farquharson, Arbroath, and Mr. Pennycook, Glasgow. The plans and specifications were prepared in the office of Mr. Barr, C.E., Caledonian Railway, Perth, and the whole of the extensive works have been

carried out in a satisfactory manner under his supervision.

ASTON.—At a recent meeting of the Aston Board of Guardians a long discussion took place upon the question of the cost of the proposed cottage homes. The Building Committee reported that it had received the detailed estimate for the homes, and had had under consideration a letter from the Local Government Board upon the subject. The total cost would be £50,000, and it was recommended that the estimates should be accepted, and that the Local Government Board should be asked to sanction a loan of £39,540, repayable in sixty years, to defray the cost of the building of the structure and the Architect's charges; and a further loan of £10,460, repayable in twenty years, to meet the other charges. It was stated that since the original estimate was made for the carrying out of the work for about £25,000 or £30,000, many alterations had been made in the scheme, in accordance with the wishes of the Local Government Board. The prices of labour and of building material had also greatly increased, the cost of furnishing the buildings had not been included in the first estimates, and sixteen homes were now to be built instead of twelve. Eventually the report was adopted by fourteen votes to six.

BLACKPOOL.—The Borough Surveyor has submitted to the members of the Council his scheme for widening the Promenade—an improvement that has now been talked of for some years. He shows that the present Promenade varies in width from 24ft. to 70ft., and the footpath from 5ft. to 17ft. The scheme, which will probably be put before Parliament for sanction, provides for a footpath 10ft. wide on the east side next the houses, a carriage way 55ft., an island footpath 10ft. wide, a raised track for a double line of trams the whole length of the Promenade 20ft. 9in. wide, and then the Promenade footpath, with a uniform width of 42ft., faced at the side by a sloping hulking of 15in. granite setts. The sea wall will be exactly like that on the North Shore works, and will run on the same level till it meets the new Promenade opposite the south end of the Tower, where it will join the upper one. The concrete of which it will be constructed will be 7ft. thick, and faced above the granite hulking with concrete blocks and coping. The estimates state that the cost of the section from the south end to the Manchester Hotel will be £117,896; the second section, from the Manchester Hotel to the Royal Hotel, £98,661; and the third section, as far as the North Shore Promenade, £132,424, a total cost of a little under £350,000. The scheme has already been considered by the Council, and awaits final decision.

BLYTH.—At the South Blyth Council, plans were submitted for the erection of new Bank buildings in Bridge Street, Blyth, for Messrs. Hodgson, Barnett, Pease, Spence, and Co. It was decided to let the consideration of the plan lie over, pending a block plan being submitted; and it was further resolved to request Sir M. W. Ridley's agent to furnish an "elevation" of the new building scheme for Bridge Street, in order to secure uniformity.

BUXTON.—The Lord Bishop of the Diocese recently dedicated the new chancel of St. John's Church, Buxton. The structure has been in course of erection for many months past, under the superintendence of Sir Arthur Blomfield and Sons, from whose designs the work has been carried out. The contractors were Messrs. Cornish and Gaymer, of North Walsham. In order to provide a chancel, the east wall of the Church was removed, and rebuilt between the massive columns of the east portico, the space thus gained being divided so as to give a wide open space for choir and clergy, surrounded by a low wall supported by a flight of three steps. To the centre is the sanctuary, and on the north side the clergy vestry, while on the south side is a porch for bath chairs. The new altar, in carved oak with the five crosses, is seven steps above the nave floor level. The reredos has been recon-

structed in classical style, and on the massive black marble super-altar rest the ornaments. The credence is in the south wall. The East window is by Mr. C. E. Kempe, of London. The centre light contains a representation of the Crucifixion, with St. Mary and St. John on either side. The choir and clergy stalls are carved in oak, and on each side of the arches rests the electric four-manual organ, built by Messrs. Hill and Sons, of London, from the design of Mr. Robinson. Only a portion is now complete. The mosaics of the sanctuary and chancel are the gift of a visitor.

CARLISLE.—Last week Messrs. Castiglione and Gibbings, Carlisle, offered for sale, in the County Hall, Carlisle, the historic mansion of Dalston Hall, about three miles to the west of Carlisle, together with the estates connected with it, comprising land and properties producing an annual rental of £1604. The mansion was built in the fifteenth century, upon the site of the old fortified house which belonged to the Dalstons, a family which "came over with the Conqueror." Portions of the old building still remain, including a "pele tower." The hall is interesting, in a historical sense, chiefly as having been the headquarters for a time of Leslie during the siege of Carlisle by the Scots, after the battle of Marston Moor. The property, as a whole, was run up to £35,000, the last bidder being Mr. E. W. Stead, Haraby, near Carlisle. A number of outlying portions of the estate were then disposed of, and the mansion, with the remainder of the estate, was afterwards knocked down to Mr. Stead at £35,000.

CHAPEL-EN-LE-FRITH.—Messrs. Alfred Hill and Brother, contractors, Tideswell and Litton, have commenced the further restoration of the Church at St. Thomas à Becket, Chapel-en-le-Frith, in accordance with the terms of a faculty granted by the Chancellor of the Diocese. The removal of the old gallery at the west end of the Church opens up an ancient archway of the Georgian period, leading into the tower. The improvements, which are extensive, are done at the cost of Mr. S. Needham, a parishioner.

CHESTER-LE-STREET.—After many years of agitation in favour of a bridge over the Wear between Chester-le-Street and Lumley, it may now safely be said that the bridge will be built in the near future. Lord Scarborough has decided to replace the present antiquated ferry by a light footbridge. The only question now at issue is the site.

CUMBERLAND.—Mr. George Drake, of Bradford, has just successfully carried out the operation of letting fall a large chimney formerly used by the Parton Ironworks Company, Cumberland. The chimney was 200ft. high and 60ft. in circumference at the base, and was one of the highest on the West Coast. The great feature of the operation was that neither timber props and fire, as is usually the case, nor dynamite was used. The base of the chimney was completely cut away for half its diameter, and then the shaft was gradually wedged over. Mr. Drake himself directed operations, and gave the necessary warnings. Seven or eight minutes after the word was given for the men to come away the tall column of bricks and mortar fell with a terrific crash, and in almost the desired direction. The whole operation took about eighteen hours.

DUNFERMLINE.—The tower formerly connecting the Abbey of Dunfermline with the Palace, which has been converted into a Museum, was opened by Mr. Andrew Carnegie a day or two ago. The tower, which is a massive oblong building situated at the south-west corner of the Abbey grounds, was until recently used as a sexton's toolhouse, but has been transformed into a home for antiquities connected with Dunfermline and neighbourhood. The work of renovating the building has been carried out under the direction of Her Majesty's Office of Works, the plans being prepared by Mr. Hawks. The alterations, which it was necessary to make have been of such a character as to retain the whole

building in harmony with its surroundings. There are in all four rooms of different sizes and shapes. The windows have been filled in with Cathedral glass, and in the principal apartment the Scottish standard and the Dunfermline burgh arms appear in the eastern and western lights respectively, while Mr. Carnegie's monogram is shown in another.

GLASGOW.—At a recent meeting of the Free Church Presbytery of Glasgow, plans were submitted by Mr. James M'Michael, junior, for the erection of a new Church in Springbank district. Mr. M'Michael said that the cost of the Church, including the site, which had been secured at the junction of Garscube Road with Gairbraid Street, was estimated at about £9000. With the grant they were getting from the Presbytery they had the prospect of opening the Church free of debt. The plans were remitted to the Church Planting Committee for consideration and report.

GLOUCESTER.—The Gloucester Board of Guardians has appointed Mr. A. Saxon Snell, of London, and Mr. Walter B. Wood, of Gloucester, as joint Architects to the proposed new workhouse, infirmary, and cottage homes.

HALIFAX.—The project at Halifax for erecting a new court-house, police station, cells, &c., on the site of the old Infirmary, in Harrison Road, has now been under discussion for at least twelve months. The site has been bought and paid for, and two competitions for plans have also taken place—and been paid for—and yet a decision on the points at issue seems as far off as ever. The fact is, the Watch Committee, with whom the decision practically rests, is hopelessly and evenly divided as to whether the old building shall be "adapted" or an entirely new structure erected.

HUNMANBY.—A bazaar was recently held in aid of the restoration of the Church of All Saints, Thwing, near Hunmanby. The Church dates back to the twelfth century, and contains Norman work. It is proposed to preserve all its ancient features, but the pews will be placed by open seats. The fine old font, which had been removed from the Church, and was lying in a garden in another parish, has been repaired and restored.

LANCASTER.—An Exhibition of Arts and Crafts was held last week in the Drill Hall. In previous years there have been held in the town exhibitions partaking in some degree of the character of this, but not on so large and comprehensive a scale. The Countess of Bective was approached with a view of enlisting her interest in the present Exhibition, which was intended to be in the nature of a Diamond Jubilee celebration, and the efforts of her ladyship and a representative committee were entirely successful. The exhibits included paintings, drawings in monochrome and water colours, wood-carving, modelling, metal work, carpentering, stone work, painter's work, plumbing, &c. The works of Fine Art were many of them extremely creditable, but to many the quality and varied character of the productions in the handicrafts and minor arts were even more interesting. The Exhibition proper was supplemented by a loan collection from South Kensington. Probably the most notable of other exhibits are some pictures sent by Mr. Ruskin, including several of his own drawings and a few water-colours by Turner, these embracing "The Aiguillette" and Winchelsea.

LONDON, E.—An additional factory has just been completed in the Minories for Messrs. James Taddy and Company, the old-established firm of tobacco manufacturers. The new premises have been erected for a special branch of their manufacture. The Architect is Mr. Edwin J. Sadgrove, of Surrey Street, Strand, and the builder Mr. T. E. Mitchell, of Hampstead Road. The building is a substantial and imposing structure. The principal material used in the elevation is Portland stone, and red and glazed bricks have been liberally used in the interior. The sanitary

work has been executed by Mr. G. Jennings, of Lambeth, and special systems of ventilation and water filtration have been installed to meet the special requirements of the factory.

NORTHWICH.—With the exception of the displacement of a few more bricks in the archway beneath the sanctuary, there has been no further perceptible subsidence at the Dane-bridge Parish Church, Northwich. The building, however, is in a most dilapidated state, and the walls are held together by iron bolts. Five years ago an Architect reported it to be dangerous, and it is now felt that entire demolition is the only safe procedure. An examination of the entire structure has been made, and the rural dean has paid a visit of inspection with the object of reporting to the Bishop of Chester. The Church is situated in an area greatly affected by subsidence. Within a short distance there are two houses badly cracked; at various times portions of the roadway in the vicinity have sunk, and seven or eight years ago the old Wesleyan Chapel was found to have suffered so much from subsidence resulting from brine pumping that it was razed to the ground. It is probable that the Church will be pulled down and replaced by a structure on the composite principle.

PERSIE, N.B.—A stained glass window, and also a neat porch, has been erected in Persie Church. The window is circular, filled with Cathedral tinted glass, having a white panel in the centre, with a dove on same. The porch is a much needed improvement. The window is by Messrs. Lindsay and Scott, Dundee, and the other tradesmen are—Mason, Mr. James Paterson, Persie; joiner, Mr. James Keay, Clayquhat; plasterer, Mr. W. Mitchell, Alyth; slater, Mr. R. Craigie, Blairgowrie; plumber, Mr. G. P. Kidd, Blairgowrie. The plans were drawn up and the work superintended by Messrs. L. and J. Falconer, Blairgowrie.

PORTSMOUTH.—Mainly at the instance of the Mayor (Mr. G. E. Couzens) it was resolved at Portsmouth that the permanent memorial of the Queen's reign should be the commencement of a new hospital. The existing building, the foundation-stone of which was laid by the late Prince Consort on September 27th, 1847, is regarded as unsuited for modern requirements; and as the beginning of a better and more up-to-date edifice, two blocks are to be erected. For the work, over £15,000 has, since January last, been raised in the town and neighbourhood. The Duke of Connaught was invited to lay the foundation-stone of Block A, and His Royal Highness readily consented. The ceremony accordingly took place on Saturday week.

PYECOMBE.—It would be a thousand pities if the fine old Church of Pyecombe were left much longer in its present condition. The structure itself is seriously in need of repair. The Church is of great antiquity, and is very interesting from an archaeological point of view, as, in addition to the Norman work, there are some traces of Saxon material to be found in it. A remarkable feature is the triple arch (of more than one architectural style) dividing the nave from the chancel; and the leaden font, which is believed to date from the eleventh century, is also of much interest. Very few leaden fonts are to be found in the kingdom—about twenty, it is believed, three of which are in Sussex Churches. The Church is in a very exposed position, situated as it is on a hill, and no doubt the serious state of the fabric owes much to the weather. Among the works which it is necessary to take in hand are the re-roofing of a portion of the tower and nave, restoring the belfry, putting in new windows, with fresh iron, lead, glass, and stonework, painting a portion of the walls with petrifying damp-proof solution, improving the heating apparatus, improving the seating, altering and increasing the accommodation for the school children, putting new guttering and stock pipes to the roof, and a new brick drain round the exterior of the building, &c. It is estimated that a sum of £500 will be required.

ST. PANCRA'S, N.W.—The new buildings which are being erected in Tavistock Place, St. Pancras, for the new Passmore Edwards Settlement, will not be entirely ready for occupation till the beginning of the new year. The new buildings, toward the erection of which Mr. Passmore Edwards has contributed the sum of £12,000, will contain a concert and lecture hall, classrooms, library, gymnasium, and a large drawing room and dining room, together with rooms for a warden and eighteen or twenty residents.

SCARBOROUGH.—The Local Government Board has written to the Town Clerk of Scarborough (Mr. J. E. T. Graham) stating that it is prepared to sanction the borrowing of the sum of £16,100 for the purchase of property comprised in the Harcourt Place improvement, which is to give better means of intercommunication between Huntress Row and St. Nicholas Cliff, for a term of 50 years, but that if the Town Council determined to re-sell the surplus land, the Board would only allow a term of two years for the repayment of the loan for the land.

SHEFFIELD.—The premises which, Mr. John Walsh is erecting in High Street occupy a site of over three-quarters of an acre, and have frontages to High Street and Mulberry Street of 172ft. and 200ft. respectively, and the latter will be considerably improved by the addition of a covered footpath 6ft. in width. When completed the total area of the floors will be about 3½ acres. The ground floor of the building will be 150ft. wide by 200ft. long, and a feature will be the absence of all internal walls. This floor will be divided, however, into six salesshops, each 25ft. wide by 200ft. long, by columns, which will be so placed as to cause no obstruction to either passengers or counters. Over the back part of the showroom two floors of workshops will be built. The upper part of the building will be set back 3ft., so that for the 372ft. of frontage there will be no greater obstruction to the show of goods than 1½ in. wooden window bars. The style will be French Renaissance, and the upper part of the building will be of Huddersfield stone. Messrs. Flockton, Gibbs, and Flockton are the Architects, and Messrs. Longden and Son the general contractors.

WILLESDEN.—The Willesden Board of Guardians has appointed Mr. A. Saxon Snell, F.R.I.B.A., as Architect to the proposed new workhouse, infirmary, and cottage homes.

The nave of the new Swansea Parish Church was opened on Thursday.

The Town Council of Aberdeen is to be recommended by a special committee to erect a Corporation slaughter-house, at an estimated cost of £30,000.

The authorities of Gefle have decided to build a new harbour and to deepen and improve the access through the fiord. The total cost is estimated at about £55,000.

There is a project on foot to erect an hotel at S. Salvatore on Mount Vesuvius, which will be the first mountain hotel near Naples to which the inhabitants can resort during the heat of summer.

The London County Council has completed the purchase of Fortune Green, West Hampstead, which is to be used as a recreation ground, for £8000. The Green comprises about three acres, to be maintained as an open space by the Hampstead Vestry, which has agreed to contribute £3000 towards the expense, a similar sum having been given by the London County Council, and the remainder raised by subscription.

The sale of Captain Brinkley's interesting porcelain collection at Christie's brought a total of £900 for the 208 lots. From another source came a beautiful Japanese six-leaf screen, painted with monkeys, fir trees, &c., which Lord Mayo secured for 20 guineas; and a set of four Louis XV. fauteuils, carved and partly gilt, the backs, seats, and arms stuffed and covered with old Aubusson tapestry, with groups and wreaths of flowers on yellow ground, which brought 62 guineas.

Enquiry Department.

EMBOSSING GLASS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I understand it is impossible to emboss glass unless the whole surface is done, and that, in the case of bevelled edge embossed glass panels it is usual to emboss the entire surface of one side, and afterwards bevel both sides, which removes so much of the embossing as is affected by the bevel. I have had some glass panels prepared and ordered the same to be embossed and bevelled, and the result was that these panels came to hand embossed and bevelled the same side. Why can't the embossing be done on opposite side to bevelling and stopped immediately behind edge of bevel so as not to cause the other side of glass to be bevelled and also not to spoil the effect of the bevelled edge.—Yours faithfully,

H. G. B.

The art of manufacture has been brought to such perfection at the present time that it is extremely difficult to find anything really impossible, using that word in its proper sense, and we find our correspondent does not require anything impossible in desiring to have glass embossed upon one side and bevelled upon the other.

We briefly describe below the methods employed in embossing and bevelling glass. Although some firms do both they are two quite separate and distinct processes, and there are many firms who limit themselves to one or other of them.

GLASS EMBOSSING.

Although this is with rare exceptions the second process, we propose describing it first, as the sort of glass sent to be bevelled is affected according to whether it is going to be embossed on both sides, or only on one, or to be bevelled only.

After plate glass has been cast it has to be ground perfectly flat before the final polish can be produced. If the glass is purchased in this state the labour and expense of polishing it is saved, and it is, therefore, in this condition that it is stocked by the tradesman for embossing purposes. If it is intended to emboss it on both sides, then both sides of it are ground or obscured, and if on one side only, it is obscured only on one side.

The obscuring or grinding of the surface is not part of the process of embossing, the glass having never been brought up to a polished surface at any period of its entire manufacture. This accounts for the whole surface, with the exception of the design, being ground; and if the finger is passed over this surface, the pattern embossed upon it will be found to be slightly depressed. To produce this the glass is coated with a thin sheet of wax, through which the embosser etches his design, which, of course, leaves the glass bare just in these places. A solution of hydro-fluoric acid is then poured into these incisions, and, although it does not affect the wax, it quickly eats into the glass. When it has done so sufficiently, the acid is poured away and the wax cleaned off, and the process is complete.

As we have already stated, embossing is usually done after the bevelling, but the only reason being that when embossed the glass is much more valuable, and the danger in cutting down the edges is considerable, and the glass is sometimes broken in the process. As proof that there is no difficulty about it, it frequently happens that a little of the acid will run over the bevelled edges, destroying the polish. When this occurs the square is usually sent back to the bevellers to rub up the damaged edge again.

BRILLIANT CUT-GLASS

must not be confounded with embossed glass. The designs done in this way are upon glass polished both sides, i.e., quite clear, and are not done with acid at all, but cut with a very small emery-wheel similar to the method

adopted in making wine glasses, tumblers, and other cut-glass articles.

GLASS BEVELLING.

Glass which is going to be bevelled only, and not embossed, is the ordinary clear glass polished both sides. The glass as sent to be bevelled is cut to its exact size and shaped, as the bevel always follows the shapes to which the edges of the glass are cut. The more curved or intricate that edge is the greater effect produced by the bevel.

The workman gauges upon the sheet the width of the bevel he intends to give, and the superfluous glass is quickly removed by a revolving iron roughing wheel. These wheels or disks are not worked upon a horizontal but a vertical spindle, and revolve similar to a potter's wheel. The sheet of glass, if very large, is fixed upon a rest at the necessary angle to produce the proper bevel; this is pushed forward until the edge of the glass lies upon the surface of this revolving disk. If the squares are small enough the operator holds them in his hands and watches the progress through the glass. The advantage of bevelling the ground side is obvious, as he can easily see through the clear side, and can alter the angle without removing the glass from the disk. This only applies to glass bevelled on one side. If it is to be bevelled on both sides, as both sides are in that case ground, he has to adopt other and less easy methods to see when the edge is ground down sufficiently. This is the principal reason why the worker prefers to bevel the embossed side, but if it is specially ordered and paid for extra, there is no reason why the glass should not be bevelled on one side and embossed upon the other. The general opinion in the trade, however, seems to be that the bevel being highly polished forms a better contrast when done on the embossed side than when done on the polished side, as the bevel would be much less seen when the other side is obscured. After the principal portion of the superfluous glass has been removed on the iron wheel, the glass is removed to a bevelling stone, which resembles an ordinary grindstone, except that it is laid flat and revolves on a vertical spindle. This stone smooths the bevel, and it is then brought up to a brilliant polish by being rubbed by hand with pumice powder and rouge.

The opening ceremony in connection with the new Town Hall, Prestonpans, was performed by Mr. R. B. Haldane, M.P.

The Museum at Lausanne has been broken into by thieves, who have stolen a collection of medals of great value and various works of Art. Dealers will do well to be on their guard.

In the County Hall, Preston, a bust of the Queen has been unveiled as a memorial of the Jubilee. The bust has been executed by Mr. Adams Acton, and is said to be an excellent likeness.

The date of the visit of the Duke and Duchess of York to Glasgow has not yet been definitely fixed, but will be probably either the 9th or 10th of September. His Royal Highness will lay the foundation-stone of the new Art Galleries, to be erected at a cost of about £180,000.

The extension of the Promenade from East View to Bare White House, Morecambe, is being pushed rapidly forward, and the contractors have commenced the construction of the new entrance to the Morecambe Pier. The contracts for the electric light installation have been let. Application has been made to the Board of Trade for powers to borrow £4000 for the construction of a tramway along the new promenade to Bare.

The highest bridge in the world is said to be the Leo River viaduct on the Antofagasta Railway in Bolivia, South America. It is constructed over the Molo Rapids in the Upper Andes, between two sides of a canyon situated 10,000ft. above the level of the Pacific. From the surface of the stream to the level of the rails the viaduct is 636ft. in height. The length of the principal span is 80ft., and there is a distance between the abutments of 820ft.

Trade and Craft.

ACTION BY A SHREWSBURY BUILDER.

At the Shrewsbury County Court, before Judge Harris Lea, an action was brought by Henry Farmer, builder, Shrewsbury, to recover from John Davies, grocer, also of Shrewsbury, the sum of £20 16s. 6d., balance of account. Plaintiff deposed that in April, 1896, he received a bill of quantities respecting certain alterations to be carried out to defendant's premises in Castle Street, and sent in an estimate for £85 for the work, which was subsequently reduced to £83. The estimate was accepted, and as soon as the alterations had commenced he noticed that his foreman was doing work not specified in the contract, and he gave instructions for the time to be booked. The amount now claimed was the balance of account for extras. Defendant sent in a cheque for £10 in settlement of the claim, but plaintiff refused to accept it.—Verdict was given for the plaintiff, with costs.

ACTION BY A CONTRACTOR.

The case of Williams v. the Barmouth District Council was heard recently in the Divisional Court, before Mr. Justice Lawrance and Mr. Justice Collins. The plaintiff is a contractor, who constructed the Barmouth outfall sewer under a contract with the old Local Board. When the contract was completed he claimed £3417 18s. 1d. for the work, or over £1000 more than the contract price. The Local Board in November, 1894, compromised the claim, and agreed to pay £1080, £120 of which they paid at once, the balance to be paid in six months. Before the expiration of the six months the Local Board was superseded by the District Council, who refused to pay. The matter was referred to arbitration. The umpire, Mr. Rhys Davies, of Brecon, found for the contractor, and the District Council sought to set aside or refer back the award. After a long and complicated argument, both judges found against the Council, with costs.

UNDERGROUND LONDON.

The works of the Waterloo and City Electric Railway are being expeditiously pushed forward. The northern or up-tunnel has been completed for the whole of its length, including the station and siding tunnels at the Mansion House. The vast amount of excavation necessary for this underground station has all been carried out without disturbing the surface. The City Station tunnel for the down line has still to be executed, but it is hoped that this will be finished within the next six weeks. The engineers of both this line and the South-Western Railway have been carefully watching the under-pinning of the piers and buildings at the Waterloo Station, but no settlement whatever has occurred in the surface buildings. The greater part of the boring operations have taken place from a site on the Thames near Blackfriars Bridge, and the whole of the excavated soil has thus been rapidly carried away by boats.

A CARPENTER'S WAGES.

In the Westminster County Court a case arising out of the Jubilee was tried. Patrick O'Mara, a carpenter, was employed in May last by Mr. Hill, a builder, in the erection of Jubilee stands, when an offer came to him from another builder who was executing similar work for a wage of £5 10s. a week. Rather than lose the carpenter's services, Mr. Hill agreed to pay O'Mara 2s. an hour until the Jubilee was over. A day or two later O'Mara was discharged without notice, and he could then only get work at 10d. an hour. He now sued his master for the difference between 10d. and 2s. an hour for the period of a month.—The defendant said the plaintiff discharged himself, and further that he was only engaged by the hour. He had put up with a great deal from the plaintiff, and on the morning he left he had to remonstrate with him for "nursing" the job, whereupon he threw down his tools and said "I'm done, and you will have to pay me within an hour." The witness did pay

him, and upon his demand for another hour in lieu of notice, he gave him another 2s.—Judgment was given for the defendant with costs.

IMPORTANT BUILDING ACT DECISION.

At the South Western Police Court last week Mr. Francis gave an important decision in a summons against Mr. J. Schiefer, a builder, of Grove Mansions, Clapham Common, issued at the instance of the London County Council. The defendant was fined 10s. last March for erecting wooden structures at the rear of the mansions without the leave of the Council. As they were still allowed to stand he was further summoned for the recovery of the cumulative penalties. That summons, however, was dismissed, the magistrate being of opinion that the Council had proceeded under the wrong section of the Act. The Council accordingly issued a summons under Section 170, the effect of which is a magisterial order empowering the Council to enter the premises and demolish the illegal structure, and charge the defaulter with the expenses.—Mr. Chilvers supported the summons for the Council, and Mr. W. R. Warren, the defendant's counsel, raised the plea that his client, having parted with the property since his conviction in March, had no longer control over the structures.—The magistrate said the section of the Act clearly intended to reach the premises without reference to the owner or the occupier. Certain buildings were condemned, and the important thing was to demolish them. If the defendant would not do it, no question of ownership could stop the Council from carrying out the order of condemnation. He gave his decision in favour of the Council with two guineas costs.—On the application of defendant's counsel, his worship agreed to grant a case for the consideration of a higher court.

STRIKE AT SOUTH SHIELDS.

The plasterers of South Shields have come out on strike as a protest against the bricklayers doing work which is claimed by the plasterers as their right. For many years past the work of putting down cement flooring such as is used in back-yards, stables, sculleries, &c., has been performed by both plasterers and bricklayers, but the plasterers in Shields claim that this work is being done in other districts by plasterers alone, and they further assert that the plasterers' trowel and rule must be used for the job.

A REPORT has been presented to the London County Council showing the result of the erection of the Diamond Jubilee Stand. The stand was erected by the Works Department at a cost of £2150 7s. 4d., decorations cost £237, and refreshments £226 8s. The tickets sold were 2719 in number, and realised £3601 5s., and it is estimated that there will be a balance to the good of £738 13s. 7d.

The Birmingham Museum and Art Gallery has acquired temporary possession of a relic of the greatest historical and antiquarian interest, being a tapestry map of Warwickshire, executed at the Barcheston looms of William Sheldon in the sixteenth century. The scale is 3in. to the mile, and the map contains pictorial representations of the principal houses and Churches, towns and bridges, forests, roads, and even windmills and beacons.

At a recent meeting of the City Commission of Sewers it was referred to the Streets Committee to see that name-plates indicating the various streets in the City were fixed on both sides of the thoroughfares, and that the names were also painted on the public lamps in suitable positions to be seen at night. On the recommendation of the Finance and Improvement Committee, the Commission adopted an arrangement for acquiring the leasehold interest in Nos. 52 and 53, Newgate Street, for £10,500, also for securing the area in front of No. 35, Old Jewry, for £3000. In regard to an application from the Central London Railway Company for permission to proceed with the public staircases at the corner of Walbrook and Queen Victoria-street, no objection was offered.

SOCIETY MEETINGS.

York Architectural Society.—The members recently paid a visit of inspection to the extensive works of Messrs. Rowntree, in course of erection between the Haxby and Wigginton Roads, which are now approaching completion. The party were received by Mr. J. Wilhelm Rowntree, and the Architect, Mr. Fred Rowntree, of Glasgow, from whose designs the buildings and offices are being built. After passing through the various apartments the visitors were most hospitably entertained by Mr. J. W. Rowntree, and a cordial vote of thanks was passed on the proposition of Mr. George Benson, seconded by Mr. Arthur Pollard, for the enjoyable afternoon spent.

Somerset Archaeological Society.—The second day of the annual gathering was devoted by the members of this Society to excursions westward of Bridgwater. They first visited the Parish Church of Stogursey, which Mr. Buckle, the honorary diocesan Architect, described as a splendid example of Norman work. Stoke Courcy Castle was next visited, and Mr. Buckle said it was recorded that this was destroyed by Lord Bonville in the time of Henry VI. It was a matter of doubt whether it was ever a habitable dwelling. The next places visited were Dodington Manor and the site of Stowey Castle, respecting which an interesting paper was read by the Rev. W. Gresswell. Sir A. A. Hood believed that this old Norman stronghold was razed to the ground after the execution of Lord Audley, and the late Sir P. P. Acland had the foundation cleared. Cannington Church was afterwards visited, and also briefly described by Mr. Buckle, who said it was remarkable for having only one slate roof, which covered the entire building.

The memorial to the late Lord Tennyson, which it is proposed to erect on Blackdown, does not seem to receive the favour originally expected. The suggestion was to erect a summer-house on the hill near the poet's residence, but many friends and neighbours of Lord Tennyson have questioned the wisdom and suitability of the erection.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERSOCH (Carmarvonshire).—For alterations and improvements to Bwlch C. M. Chapel, Abersoch, near Pwllheli. Mr. R. L. Jones, Architect, Carmarvon.—£275

AUDENSHAW.—For the erection of class-room, St. Stephen's Central Schools. Mr. J. H. Burton, Architect, 2, Guide-lane, Hooley Hill:—
J. Whitehead £208 15 | Executors of T. Storer £191 10
J. Ridyard 208 10 | J. Pike and Son,
C. Evans 200 0 | Hooley Hill* 180 0
J. Clayton 194 0 | *Accepted.

BARRY (Glam.).—For the erection of school buildings, Barry Island, for the School Board. Mr. G. A. Birkenhead, Architect, Caledonian-chambers, St. Mary-street, Cardiff.

Quantities by the Architect:—
D. G. Price £2,873 0 0 | Jonathan Lewis,
Lloyd and Tape 2,847 17 0 | Cadoxton
D. Davies 2,795 0 0 | Barry* £2,753 12 3
James Jenkins 2,794 0 0 | G. & F. Couzens 2,749 10 0
*Accepted. [Architect's estimate, £2,708 2s. 8d.]

BECKENHAM.—For the execution of painting works, repairs, &c., Alexandra Schools, for the School Board. Mr. John Ladds, Architect, 7, Doughty-street, Mecklenburgh-square, W.C.:—

T. W. Jones £520 | Dennis and Jones £376
Syme and Duncan 510 | H. Heathfield, Kent
T. Cox 400 | House-road, Becken-
ham (accepted) 362

BIGGLESWADE (Beds.).—For the execution of sewerage works, &c., Pottton, for the Rural District Council. Mr. John W. B. Rooke, Surveyor, Council Offices, Biggleswade:—
W. Wade £333 0 | M. S. Kitteringham £279 0
Bartle and Son 287 10 | J. Jackson, London* 275 0
*Accepted.

[Engineer's estimate, £320.]
CARNARVON.—For the erection of school buildings, Carnarvon, for the Landwrog School Board. Mr. R. L. Jones, Architect, Carnarvon:—

O. Morris £765 | Edward Parry £750
Hughes and Griffiths,
Llanfair, P.G. Angle-
sea (accepted) 750 | Richard Jones 725

CARNARVON.—For the erection of County school buildings, in Bethel-road, Carnarvon, for the Carnarvon Local Governing Body. Mr. R. L. Jones, Architect, Carnarvon:—
D. Evans Jones £8,585 | Williams and Roberts £6,510
R. Jones 7,077 | Owen Morris, Carnar-
D. Williams 6,789 | von (accepted) 6,497
[Furniture and fittings of laboratories not included in the above tenders.]

CARNARVON.—For the erection of Sunday School buildings, for the Committee of Waentawr C.M. Chapel. Mr. R. L. Jones, Architect, Carnarvon:—
W. Roberts £1,764 10 | Hugh Hughes, New-
Williams & Roberts 1,335 0 | borough, Anglesea* £1,275 0
D. Jones £1,291 0 | Hugh Jones 1,232 0
*Accepted.

CARNARVON.—For the erection of school buildings, for the Carnarvon School Board. Mr. R. L. Jones, Architect, Carnarvon:—
 D. Williams ... £5,757 | G. F. Williams ... £5,287
 E. Jones ... 5,499 | Owen Morris, Carnarvon (accepted) ... 5,210
CHWILLOG (Carnarvonshire).—For alterations and additions to Siloh Independent Chapel, Chwillog, R.S.O. Mr. R. L. Jones, Architect, Carnarvon:—
 H. Jones ... £1,764 0 | Gth. Jones, Morfa
 R. Roberts ... 1,849 10 | Nevin, near
 Jones, Roberts, and ... 1,238 0 | R. Jones ... 1,099 0
 J. T. Jones ... 1,230 0 | D. Evans (painting) ... 114 0
 O. Morris Roberts ... 1,238 0 | * Accepted.
ECCLES (Lancs.)—For the erection of a pavilion in the recreation ground, for the Corporation:—
 Chapman and Hellinworth, Patricroft ... £190

CROOK (Durham).—For the erection of warehouses, &c., for Mr. Jos. Anderson. Mr. H. T. Gradon, Architect, 22, Market-place, Durham:—
 G. T. Nanners ... £1,557 0 0 | T. Walton Crook* £1,122 9 3
 T. Hiltoft ... 1,129 10 9
 + Revised. * Revised and accepted.
GLEDHOW (near Leeds).—Accepted for the erection of two semi-detached houses for Messrs. J. and H. Longbottom. Mr. W. Carby Hall, Prudential-buildings, Leeds. Quantities by the Architect:—

Bricklaying and Masonry.—J. Richardson, Chapel-Allerton ... £446 8 0
 Carpentry and Joinery.—J. Richardson ... 245 0 0
 Plumbing and Glazing.—W. Briggs, Leeds ... 90 10 0
 Plastering.—W. J. Haddock, Leeds ... 72 0 0
 Tiling.—Watson and Worsnop, Leeds ... 69 0 0
 Painting.—A. W. Richardson, Leeds ... 19 11 3

EDEYRN (Carnarvonshire).—For the erection of Chapel and schoolroom, near Pwllheli, for the Committee of Edeyrn C. M. Chapel, Edeyrn. Mr. R. L. Jones, Architect, Carnarvon:—
 Griffiths and Griffiths ... £3,125 | J. Jones ... £2,392
 R. Jones ... 2,511 | D. M. Roberts ... 2,294
 Griffith Jones, Morfa, Nevin* ... 2,398 | * Accepted.

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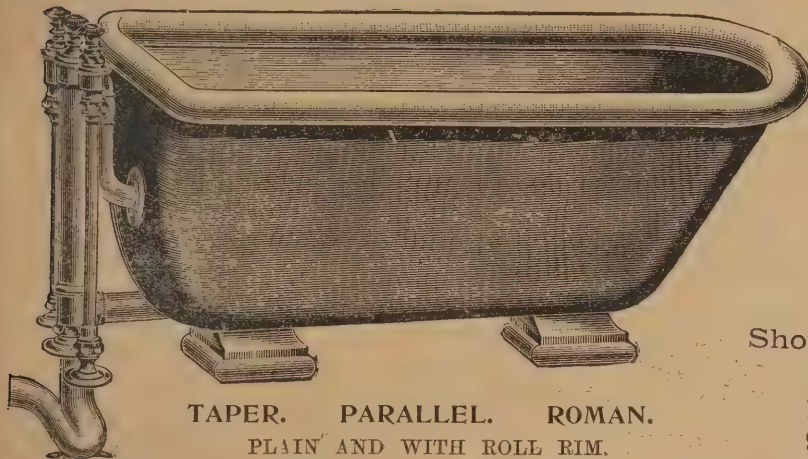
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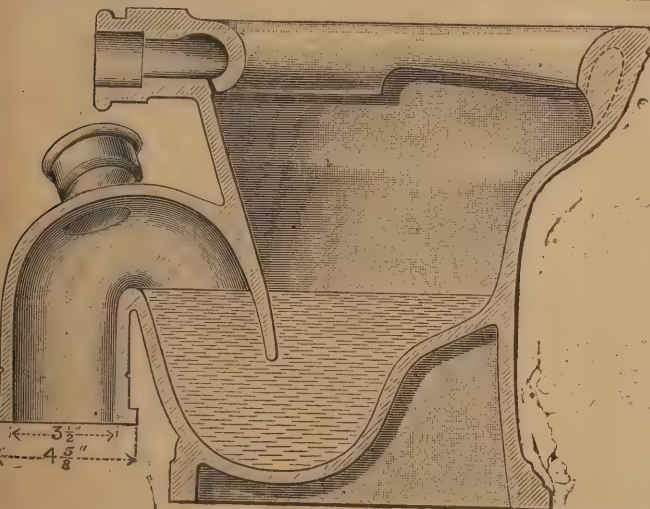
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FARNBOROUGH (Hants).—For the erection of a pair of villas in the Queen's-road, for Mr. A. Hitchcock. Mr. W. E. Trevena, Farnborough, Architect:—
W. Smith, Farnborough 2650 J. B. Seward, Woking-
E. C. Hughes, Woking- ham 530 C. Lunn, Cone* 519
* Accepted.

GREAT YARMOUTH.—For the erection of St. Paul's Mission Church, half-timbered, for chancel, nave, and organ chamber. Messrs. Bottle and Olley, Architects, 5, Queen-street, Great Yarmouth. Quantities by the Architects:—
G. Hawes ... £1,050 0 0 T. Howes ... £965 0 0
A. E. Bond ... 1,045 0 0 Balls ... 895 0 0
J. F. W. Bray ... 1,044 0 0 T. H. Blyth ... 820 0 0
J. P. Newby ... 995 10 0 W. Cork, Great
Carter & Wright 970 0 0 Yarmouth* 764 0 0
C. Wiseman 969 15 6 *Accepted.

HULL.—Accepted for the erection of workshops, &c., St. Andrew's Dock, for the Humber Shipwright Co., Ltd. Messrs. Freeman, Son, and Gaskell, Architects, Albert-chambers, Carr-lane, Hull. Quantities by the Architects:—
Brickwork.—J. R. Woods ... £748 0 0
Masonry.—Quibell and Son ... 30 10 0
Slatting.—W. Folkard and Son ... 115 0 0
Joinery.—E. Finch ... 240 0 0
Plumbing.—G. F. Wells ... 153 0 0
Ironwork.—Wright and Son ... 288 10 0
Painting.—C. Crane ... 31 14 1

[All of Hull.] £1,596 14 1
KING'S LYNN.—For additions to the West Norfolk and Lynn Hospital:—
R. W. Payers ... £1,223 15 6 Bardell Bros. ... £1,055 0 0
W. H. Brown ... 1,106 0 0 H. G. Rudman* 1,023 0 0
*Accepted conditionally. [All of King's Lynn.]

LONDON.—For alterations to the "Kentish Drovers" public-house, for Mr. E. W. Carpenter. Messrs. Waring and Nicholson, Architects and Surveyors, 55, Parliament-street, Westminster, S.W.:—
J. Marsland ... £1,015 T. Hooper ... £941
C. Ansell ... 988 Laphorne and Co. ... 896
W. Smith ... 965

LONDON.—For the erection of a house and stable at No. 14, Avenue-road, N.W. Messrs. H. H. and M. E. Collins, Architects, 61, Old Broad-street, E.C.:—

	House.	Stable.	Total.
Mitchell	£16,650	£2,730	£19,380
J. Kinnimont and Sons	16,329	2,583	18,912
Hall, Beddall, and Co.	16,285	2,490	18,775
G. H. and A. Bywaters and Sons	16,100	2,500	18,600
Greenwood	15,891	2,250	18,141
Callis and Sons	15,850	2,245	18,095
W. H. Lascelles and Co.	15,674	2,150	17,824
G. Trollope and Sons	15,222	2,338	17,560
Foster and Dixey	—	—	16,967
Durrant	14,586	2,130	16,666
H. Faulkner and Co.	14,432	2,143	16,525

LONDON.—For alterations and repairs to house at No. 82, Westbourne-terrace, W. Messrs. Mallett, Booker, and Co., Surveyors:—

H. Carry	£1,577 19 0	J. Kinnimont and Sons	£1,380 19 6
Sanders	1,496 18 6	Stevenson	1,300 0 0
G. Taylor	1,438 0 0	H. Hanks	1,285 0 0

LONDON.—For re-drainage, &c., and additions to the infirmary, workhouse, and offices, Fulham Palace-road, W., for the Guardians of the Fulham Union. Mr. A. Saxon Snell, Architect. Quantities by Mr. W. Herring:—
T. Adams ... £11,027 4 11 G. Wimpey & Co.
W. Keefe ... 8,824 19 0 Hammernsmith* £7,378 0 0
H. Wall and Co. 7,562 0 0 T. Bendon ... 7,136 0 0
T. Nye ... 7,515 0 0 *Accepted.

LONDON.—Alterations to 127, Kennington-road, for the Trustees of the Walcott Charity. Messrs. Waring and Nicholson, Surveyors, 55, Parliament-street, Westminster, S.W.:—
Laphorne and Co. ... £420 T. Hooper ... £239
W. Smith ... 389 V. Rogers ... 305

LONDON.—For the completion of two houses on the Cole Park Estate, Twickenham. Mr. George F. Sharpe, Architect, 57 and 58, Chancery-lane, W.C., and Hampton Hill, Middlesex:—

T. Jenkins	£1,002 6 8	J. T. Bassano	£507 0 0
T. J. Messum	988 0 0	W. Went	935 0 0
Taylor & Kensett	688 10 0		

LONDON.—For alterations, &c., "Eyre Arms" Hotel, St. John's Wood, N.W.:—
Bishop and Co. ... £2,315 Turtle and Appleton ... £1,840
Fies ... 2,036 Melbourne ... 1,743
Ansell ... 1,855 Schwarz and Hudd ... 1,693

LONDON.—For the erection of a factory at Brook Green, Hammernsmith, for the Incandescent Electric Lamp Company. Mr. J. W. Stevens, Architect, New Bridge-street, E.C.:—

Dearing and Son	£7,490	W. and N. Castle	£7,206
Prestige and Co.	7,414	J. Carmichael	7,177
Holliday & Greenwood	7,362	Bailey	6,898
White and Co.	7,342	Seymour	6,735
Whitehead and Co.	7,245		

LONDON.—For exterior painting of Broomsleigh-street Schools for the London School Board. Mr. T. J. Bailey, Architect:—

F. Chidley	£238 0	F. T. Chinchey	£128 15
Marchant and Hirst	151 0	W. Chappel	123 10
W. Hornett	131 0	E. T. Polley*	83 0

LONDON.—For exterior painting of Central-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

C. Gurling	£129 15	Stevens Bros.	£99 10
W. Hornett	109 0	E. Polley*	97 0

LONDON.—For exterior painting of Cobourg-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

J. Garrett and Son	£255 0	J. Ford	£219 0
W. V. Goad	230 0	Jones and Groves*	193 13

LONDON.—For exterior painting of Dalmain-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

A. Black and Son	£145 0	Jones and Groves	£96 0
G. Summers	124 15	G. Kemp*	85 0

LONDON.—For exterior painting of Gainsborough-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

G. Wales	£216	G. Barker	£148
W. Silk and Son	197	A. W. Derby	159
W. Shurmur	199	T. Nicholson*	147
J. Kybett	187		

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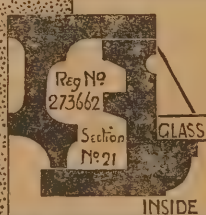
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LONDON.—For the execution of drainage works at the infirmary and additions to the workhouse and infirmary in the Fulham Palace-road, Hammersmith, W., for the Guardians of the Poor of the Fulham Union. Mr. A. Saxon Snell, Architect, 22, Southampton-buildings, Chancery-lane, W.C. Quantities by Mr. Walter Herring, Trafalgar-buildings, Charing Cross, W.C.

	Estimate No. 1	Estimate No. 2	Estimate No. 3	Estimate No. 4	Total.
	Drainage and Laying out Grounds.	Additions to Doctor's Residence and Infirmary Dispensary.	New Story to the Out-Relief Stores, &c.	New Asphalted Roadway.	
Adams	2 s. d.	2 s. d.	2 s. d.	2 s. d.	2 s. d.
Keefe	5,466 2 1	2,334 1 9	2,693 16 1	333 2 0	11,027 4 11
H. Wall and Co.	3,994 6 8	2,073 1 8	2,511 15 0	243 15 8	8,824 19 0
Wimpey and Co.*	3,524 0 0	1,630 0 0	2,030 0 0	378 0 0	7,562 0 0
T. Bendon	3,432 0 0	1,590 0 0	1,980 0 0	380 0 0	7,378 0 0
T. Nyet	3,165 0 0	1,644 0 0	1,951 0 0	376 0 0	7,136 0 0
	3,222 0 0	1,694 0 0	2,179 0 0	omitted	7,095 0 0

* Accepted.

† Incomplete.

LONDON.—For exterior painting of Montem-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
A. W. Derby ... £375 0 | S. H. Corfield ... £295 0
J. Kybett ... 347 0 | D. Gibb and Co. ... 295 6
J. T. Robey ... 320 0 | G. Wales* ... 271 10
* Accepted.

LONDON.—For exterior painting of Montem-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
G. Barker ... £240 0 | G. S. S. Williams and Sons ... £171 0
McCormick and Son ... 225 0 | Stevens Bros.* ... 158 0
W. H. Stephens ... 171 10
* Accepted.

LONDON.—For exterior painting of New-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
Holloway Bros. ... £243 0 | G. Britain ... £150 0
F. G. Minter ... 230 0 | J. Ford ... 149 0
J. Garrett and Son ... 179 0 | Lathey Bros. ... 149 0
Rice and Son ... 170 0 | Lilly and Lilly ... 147 0
D. Charteris ... 168 0 | E. Triggs* ... 145 0
* Accepted.

LONDON.—For exterior painting of Popham-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
G. Barker ... £205 0 | Stevens Bros. ... £127 0
McCormick and Son ... 189 0 | E. Folley* ... 117 0
Marchant and Hirst ... 137 0
* Accepted.

LONDON.—For exterior painting of Rotherhithe New-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
Johnson and Co. ... £193 0 | W. Banks ... £150 0
Rice and Son ... 185 0 | E. Triggs* ... 133 0
G. Summers ... 172 10
* Accepted.

LONDON.—For exterior painting of St. John's-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
A. W. Derby ... £252 0 | J. Kybett ... £189 0
W. Shurmer ... 248 0 | G. S. S. Williams & Sons ... 188 0
McCormick and Son ... 195 0 | G. Barker* ... 183 0
W. Silk and Son ... 195 0
* Accepted.

LONDON.—For exterior painting of Trinity-place Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
T. Craws ... £105 0 | J. Kybett ... £85 0
G. Wales ... 93 0 | G. Barker* ... 70 0
* Accepted.

LONDON.—For exterior painting of Warple-way Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
Rice and Son ... £212 0 | Holloway Bros. ... £110 0
D. Charteris ... 155 0 | F. G. Minter ... 135 0
R. E. Williams and Son ... 151 0 | E. P. Bull and Co.* ... 119 0
* Accepted.

LONDON.—For exterior painting of Wood-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—
G. Summers ... £201 15 | Jones and Groves ... £178 10
W. Bauls ... 183 6 | E. Proctor* ... 160 0
* Accepted.

LOWESTOFT.—For additions to infirmary, Oulton Workhouse, for the Union Guardians. Mr. A. Clarke, Architect, 126, London-road, Lowestoft:—
Scate Bros. ... £1,100 0 0 | J. Ashby ... £3,530 0 0
Allerton & Earl. ... 3,887 15 0 | Swatman, Lowes-toft* ... 3,325 8 6
Cole ... 3,868 10 0
W. Cork ... 3,535 0 0
* Accepted.

NORWICH.—For additions to the West Norfolk and Lynn Hospital. Mr. H. J. Green, Architect, 31, Castle Meadow, Norwich:—
R. W. Fayers ... £1,223 15 6 | Bardell Bros. ... £1,055 0 0
W. H. Brown ... 1,101 0 0 | H. G. Rudrum* ... 1,028 0 0
* Accepted conditionally.

[All of King's Lynn.]

ROUNDHAY (Yorks).—Accepted for the erection of a house, stabling, &c., near Leeds, for Mr. J. Holmes. Mr. W. Carby Hall, Architect, Prudential-buildings, Leeds. Quantities by the Architect:—

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Plumbing and Glazing.—W. Briggs, Leeds ... 124 0 0
Plastering.—T. Moore, Leeds ... 128 0 0
Tiling.—Watson and Worsnop, Leeds ... 142 0 0
Painting.—W. Walsh and Sons, Leeds ... 36 0 0

TEDDINGTON.—For the re-construction of Church-road, for the Urban District Council. Mr. M. Hainsworth, Surveyor, Elmfield House, Teddington:—

	Roadway.	Tar Paving.	Total.
T. Free and Sons	£3,230 3 4	£267 13 4	£3,997 16 8
Lawrence and Thacker	3,531 10 0	385 10 0	3,916 0 0
S. Kavanagh	3,414 15 0	357 1 8 5	3,771 16 8
W. Adamson	3,315 15 0	291 19 4	3,607 8 4
T. Adams	3,275 1 8	321 2 6	3,596 4 2
Wm. Wade, Stoke Newington	*2,973 0 0	550 0 0	2,523 0 0
J. Wainwright	—	*251 4 2	—
A. J. Hobman	—	260 12 6	—

* Accepted.

THUNDERSLEY (Essex).—For the erection of cottage residence. Mr. Arthur T. A. Bowyer, Architect, 50, Leadenhall-street, E.C. (Geo. Lacey accepted) ... £225

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Candidates must not be more than 35 years of age. Printed particulars of the conditions and duties of the appointment may be obtained from the Borough Surveyor.

Sealed applications, in Candidate's own handwriting, endorsed "Architectural Draughtsman," and accompanied by copies only of not more than three recent testimonials, must be delivered to the undersigned not later than AUGUST 21st, 1897.

Canvassing is strictly prohibited.

Municipal Offices, Devonport. **A. B. PILLING,** Town Clerk.

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Applications, with references, testimonials, and salary required, to be sent to me on or before AUGUST 17th, 1897.

Aberayron, August 7th, 1897. **B. C. JONES,** Clerk to the Managers.

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The Council are prepared to receive APPLICATIONS for the APPOINTMENT of a SECOND ASSISTANT in the Surveyor's Office, at a salary of £70 per annum.

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Applications, in the candidate's own handwriting, stating age, present appointment, and previous experience, with copies of three recent testimonials, endorsed "Surveyor's Assistant," must be delivered to me, as under, on or before TUESDAY, AUGUST 31st, 1897.

Personal canvassing will be considered a disqualification. By order.

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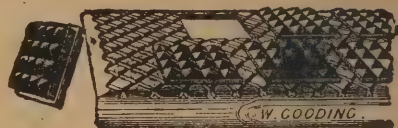
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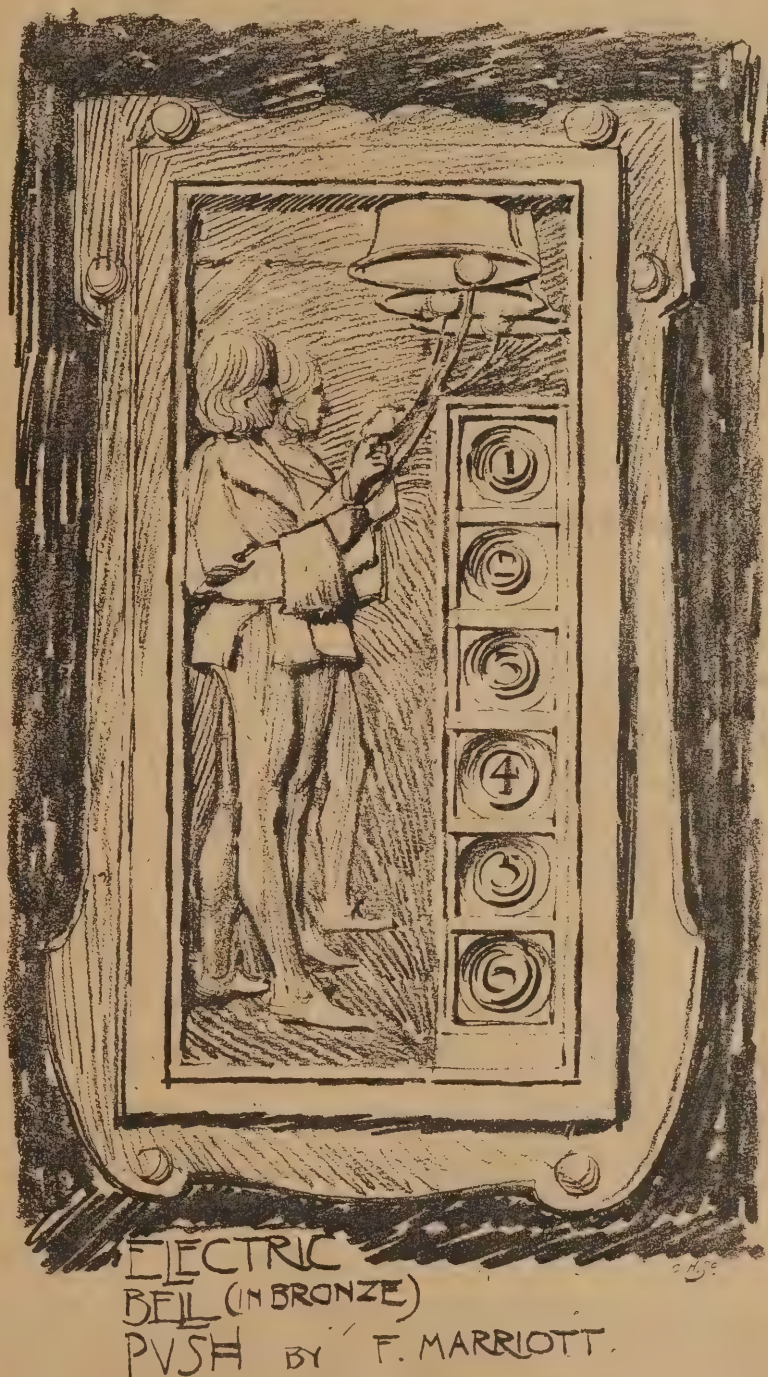


Municipal Folly!

OUR municipal authorities are of a practical turn of mind. This is a quality by no means to be despised; but, when public works are under discussion, it is necessary that it should go hand-in-hand with an instinct for Art. Let us examine two instances in which this quality has been exhibited with entirely different results. Notice the letter-boxes at the street corners. They are admirably adapted to serve their purpose. They are a convenient height for posting letters, and no higher. They are wide enough to hold a sufficient number, but not wide enough to seriously interfere with the traffic. They are circular on plan, a form best adapted for crowded thoroughfares, as it takes up the least possible room and presents no angles; it is also the strongest form for any given amount of material. Some are octagonal, but the circular are better. There is a slightly projecting base, so as not to interfere with the feet of passing pedestrians, and the whole thing is finished off with a sloping top or roof, which projects just far enough to obtain a throating to throw off the water, the projection being kept flat in section to minimise the effect of a blow to anyone who might happen to stumble against it. Being objects that should be easily noticed and be as conspicuous as possible, and which it is necessary at the same time to keep as small as possible, they are painted red, and by no means an unpleasant red. The projection of the base being so slight it would be unnoticeable if painted the same colour. These bases are painted black, which gives them sufficient importance, and suggests a connection with the ground. The red colour, besides attracting attention, gives just the note of colour our dull grey streets require. It may be they are painted red because this is the official colour, but let us give them the benefit of the doubt. Now this is Art, though of a primitive sort, which needs to improve its means of expression. On these lines an Artist who understood the material employed could produce fine Art. It would be better for us if all our buildings were as reasonable. This practical common-sense is not exhibited in the street fire-alarms, where we see a carriage-clock stuck on the top of a diminutive doric column. Let us turn rather to the statue of the Hero of Waterloo, in front of the Royal Exchange. In a moment of enthusiasm this monument was erected to commemorate the benefits that London and the whole country—indeed, Europe at large—have reaped from his genius and his valour. The idea of this was right, it was put in the right place, and it was Art; not perhaps of the greatest, but still it was Art. At first it was felt that the warrior's great reputation, and the aforesaid benefits, sufficiently justified the existence of the monument. But a generation arises that has not the fear of Napoleon before its eyes, that takes no personal interest in the hero. When enthusiasm dies out the practical turn of mind comes in. An underground convenience is required in this central position. Space is limited, there is no room anywhere—where to put it is the question. Some practical genius, who deserves to be Lord Mayor and a baronet, was struck with a brilliant idea. "There is Wellington sitting out in the middle doing nothing

in particular, of no practical use to anyone, and in the very place we want. Put the underground convenience round the base of his statue, with the little stair at the back well out of the way, where it takes up no room. By so doing, we get it in exactly its right position, we interfere with the traffic hardly at all, and Wellington at last serves a practical purpose; he serves to mark the spot."—This emphatically is not Art, and nothing can ever make it so. It is

England to drift into Romanism, not the real thing, but a "mongrel mock-turtle" kind of Romanism. Is there a single word in the whole of the English language better qualified to express the idea of a sham to a company of City dignitaries than "mock-turtle"? What a connoisseur in epithets! What a sense of the fitness of words! Surely such a man would have an equal sense of the eternal fitness of things, and to him we appeal to wipe away this reproach, to remove that



THE NATIONAL COMPETITION.

a *bétise*, of which probably no other people on the face of the earth could be capable. The utter lack of imagination and good taste which it shows is not to be expressed in words. The report of a recent speech at a meeting of the Common Council, the Lord Mayor presiding, leads us to believe that there is an Artist in that eminent body, and to him we appeal. Apropos of a vote in aid of the restoration of a Cathedral, he remarked that there was a tendency on the part of the Church of

underground convenience elsewhere, even at the risk of making it an inconvenience. Considering that in all London there are less than sixty commemorative monuments, it would certainly be a curious commentary on the value and scarcity of available space in the public roadway if it were found necessary to erect its statues over public conveniences, or rather to construct its conveniences under its statues. There is something particularly at variance with the fitness of things in the latest municipal proposal.

OLD BUILDINGS IN DEVONSHIRE.*

A PROTEST AGAINST VANDALISM.

By JAMES HINE.

WE cannot, I think fail to recognise the respect for Nature shown by the old moorland builders. Their Churches, whether at Widdicombe, Walkhampton, Brent Tor, or elsewhere, never mar the beauty of the landscape, but, on the contrary, enhance it, and no Artist would rather be without them. And even the old farm buildings, with their thick and low granite walls, steep thatched roofs, and rudely shaped chimneys, are in harmony with the scene around. There are not very many of them left, but they are very picturesque. It may be hoped that the proposed acquisition of the Forest of Dartmoor, or what remains of it, by the County Council is gradually approaching a practical stage. With that acquisition, not only would the preservation of prehistoric remains be guaranteed, but the repetition of such buildings as I have alluded to—which are fatal blots on moorland scenery, but which may be expected to follow all new enclosures—would be once arrested. I am sure it is the desire of this Association that Devon should have her Forest of Dartmoor whilst there is beauty to preserve, and before it is too late. Perhaps the most deplorable of modern introductions—from the point of view we are considering—is corrugated iron, which has not only largely superseded thatch, but also the old Devonshire mode of covering buildings with small slates and then interlocking them, as it were, in the valley gutters, rendering lead there unnecessary.

THIS IS NOW A LOST ART.

Fine specimens of this kind of slating may be seen on Mr. Midmay's buildings about Flete and Mothecombe, and on Mr. Tremayne's grand old Elizabethan house and out-buildings at Sydenham, where nothing can be more lovely in colour than the sheen of yellow and orange lichens on the old slates. The preservation of the ancient buildings of historic towns is, it is almost needless to say, of paramount importance. At Chester there are laws—as unalterable as other codes so oft quoted, but yet so invaluable as early precedents—affecting the maintenance of the good old building customs of that city. Might not similar laws be usefully adopted for the preservation of the ancient buildings of such towns as Exeter, Totnes, and Dartmouth? It was very gratifying to read a few weeks ago, that the Totnes Commercial Association "recommended, as worthy of consideration, the preservation and protection of the style and character of ancient houses of the town and district." There is a good conservative ring about that resolution, and would that a similar one had been adopted by many towns, including Totnes, at the beginning instead of the end of the nineteenth century; but better late than never, and opportunities of carrying it out will no doubt occur in the twentieth century. Totnes is our "Devonshire Chester," and has much left of fifteenth, sixteenth, and seventeenth century work. May it long continue, marking the importance of the town at those periods, and the value attached then to the beautiful as well as the useful. We have heard occasionally (though not quite lately) with astonishment, no less than regret, rumours of the contemplated destruction of the Butterwalk at Dartmouth, that grand old example of

JACOBAN STREET ARCHITECTURE;

and we have asked, "Can it be possible?" because it seems almost incredible that the town should entertain the idea of sacrificing a building so handsome and full of interest, so attractive to strangers in general and artists in particular, and the only important memorial, in stone and carving, left of Dartmouth in its palmy days. What a blank it would leave, and what would the town be without it? Let us hope there is no truth in the rumour that the destruction

of the famous bridge of Bideford is in contemplation; for a more vandal act could not be perpetrated; and it is very hard to believe that any Bideford man could be a party to the obliteration of his town in all that is most attractive and interesting. Bideford, since the fourteenth century, has undergone various

SO-CALLED "IMPROVEMENTS."

Now, as then, it has twenty-four massive arches; but long ago it lost its chapel and spire on one side, its bell-tower and gateway on the other side, and over the central pier the shaft and capital bearing high the figure of the Blessed Virgin with the Divine Child. What a marvel of beauty Bideford Bridge must have been four centuries ago! The parapets have undergone at least two alterations in comparatively modern times, and in the last changes, which took place, I think, about thirty years ago, when the overhanging footways were formed, the quaint V-shaped recesses, which we still see in a few remaining old Devonshire bridges, were entirely done away with here. But Bideford Bridge still retains its noble arches and piers, and the wonderful interest attaching to a long and unvalued history, and surely the town will not part with such a great possession. From Newton Abbot, and Liskeard in the adjoining county, the cry comes, "Down with it! Down with it! Why cumbereth it the ground?" And not unlikely, when twelve months hence we tell the towers thereof, we may find one of them missing. But St. Leonard's Tower had a prior history, and was between two and three centuries old when the Dutch Prince landed at Torbay; and the pity is that it ever lost the interesting little chapel, with its carved fifteenth-century seats, and probably much older font, formerly attached to it; but Newton Abbot cannot afford to lose its venerable tower, which is still useful as well as ornamental, and which possesses, it is said, for I have not heard them, a musical peal of bells. A very warm controversy has been going on in reference to the restoration or destruction of

THE NORMAN TOWER AT LISKEARD.

It has arisen out of a competition which was invited for designs for a new tower. I have not seen any of the drawings submitted, and can therefore give no opinion on the design which it is understood has been adopted. But it is the proposal to take down—when it has been shown to be unnecessary—a very early tower of almost unique interest which so staggers one. Llandaff has its ancient tower on the north side of the west end, and its new tower with spire on the south side, and the grouping of the old and the new is satisfactory there, as it could be at Liskeard. There is one thing which cannot be avoided, the renewal of utterly decayed masonry on the exteriors of Cathedrals and Churches. I daresay many present have lately noticed that a large portion of the stonework of the west front of Exeter Cathedral, including the great west window,

IS UNDERGOING RENEWAL.

I do not presume to question the judgment of the eminent Architect, Mr. Pearson, under whose direction this work is being done; the new stone facing is no doubt an absolute necessity, but it is a sad necessity, and it will be many years before the venerable façade recovers its harmonious tone. We enter the nave, Bishop Grandisson's great work. The piers and arches were scraped (a somewhat dangerous, if necessary process) in Sir Gilbert Scott's restoration; but here and there are portions of masonry—the lower parts of the vaulting shafts, some of the carved corbels under, and parts of the minstrels' gallery—which, with the remains of the original polychrome, were judiciously left undisturbed; and to my mind they are the most impressive and interesting fragments of the whole interior. These are indeed the touches of the vanished hands of those who five centuries and a half ago were engaged on this sublime work. Be assured that the secret of the interest and value of ancient buildings lies in such touches of vanished hands—the

very work as left by the old masons and craftsmen. May I be permitted, in conclusion, to express a desire that the increasing influence of our Association may be employed—by protest, appeal, and in every possible way—against the further violation of Nature, and the destruction or mutilation of prehistoric remains and ancient buildings in this county? The conservation of what is so precious is quite consistent with a hearty desire for real progress. Very barbarous things have been done; but there are signs of reaction, indications that the tide of public opinion is setting in strongly in favour of the preservation of places of historic interest and natural beauty; to redeem modern civilisation and education from still sadder reflections.

OUR ILLUSTRATIONS.

COMPETITION DESIGN FOR THE WESTWOOD HIGHER GRADE SCHOOL, SCARBOROUGH.

THIS design was submitted last February by Messrs. Unsworth and Newberry. The site is a fine one, sloping rapidly to the south-east, and adjoins the Public Park. It was intended to keep the school buildings on the north-west of the site, the principal elevation thus facing the park. Playgrounds were arranged on the south-west and north-east sides of the school, and would be levelled from retaining walls built flush with the projecting wings of the building. This would leave a space next the park capable of being laid out as an ornamental garden. Reference to the principal floor plan will show that the class-rooms are all lit from the left hand, and grouped around the central hall on three sides only. This arrangement gives them a northern aspect as far as is possible, and enables the hall to be side-lit from the south-east, so that the sunlight may penetrate across its entire width. It was found quite impossible to design the dignified and substantial building required by the conditions for the stipulated sum unless the plan were arranged in the most compact manner possible; for this reason the boys' and girls' entrances and cloak-rooms are placed on the mezzanine level, immediately below the principal floor. The library, headmaster's room, stores, unpacking room, &c., are also on the mezzanine floors. A special feature of the design was the treatment of the central hall. The conditions set forth that it should contain a floor area of 3600 square feet. This was found to give too much space in the basement and upper floors, and increased the cube of the school to such an extent that it appeared impossible to build it for the stipulated sum. A hall was therefore designed, of a superficial area of 2680 square feet, capable of being extended in a few minutes by throwing into it the class-rooms at either end. The required area was thus obtained, after allowing for placing the class room desks against the end walls, as well as additional light and ventilation. It is understood that the central hall is only occasionally made use of, and that it is never used simultaneously with the class-rooms. Everything, therefore, seems in favour of this arrangement. The materials intended to be used were red brick facings, with stone dressings and bands; the roofs to be covered with green slates, and the flèche with copper or lead. The warming and ventilation was very carefully thought out, the system adopted being a modification of that known as the "Plenum." The estimated cost amounted to £16,590.

THE ARCHITECTURAL ASSOCIATION TOUR IN LANCASHIRE.

THE drawings of Oak Chimney Piece, Levens Hall, reproduced in our last issue, were by Mr. E. P. Milne, of 100, Shaftesbury Avenue, formerly of Lancaster. By an error Mr. Milne's name was spelt "Milner."

* An address delivered by Mr. James Hine, President of the Devonshire Association, at the annual meetings recently held at Kingsbridge.

THE NATIONAL COMPETITION, 1897.

By OUR SPECIAL REPRESENTATIVE.

Illustrated by Sketches by E. A. RICKARDS.

IN spite of the optimistic tone taken by my editors in a recent cursory notice, I find it difficult, after a very careful examination of the various works now on view at South Kensington, to rise to a corresponding enthusiasm.

It is true that there is much to be commended amongst the designs for flat decoration, fabrics, &c., but those of us who remember the various models exhibited last year by the Misses Lillian Simpson, Florence Steele, and Eleanor Mercer will search in vain for work by any such pioneers of design in the round. It is this lack of form which is so painfully absent throughout the entire Competition. Possibly, as Architects ourselves, we look first, in such an exhibition of applied art, for such objects as may serve as accessories in the modern building; but is not this the right point of view?

I have tried to conceive the Architectural setting to one or two of these accessories, but with poor success—a vision of the styles from Hindoo to Early English, with a nightmare of the figure misapplied; for in all those designs which are ambitious enough to come under the heading of Architecture the fault will be found. We know those designs—they come from Glasgow, invariably.

In view of the large areas represented by some of the schools, one cannot help thinking of the good that could be brought about by the appointment of an Architect, or, perhaps, of a series of architectural visitors who would not only have some influence in their own department, but would be listened to with regard to some other branches. A man cannot be Jack-of-all-trades. No one could possess all the qualities necessary to advise and assist all of the many sections of students in a large Art School. We in London have better opportunities. The architectural students have their Architectural Association, and latterly they have been given the opportunity in the County Council School of Arts and Crafts of attending an Architectural School within an Art School with its own professors, who are masters of their own particular Craft. This is an example to be commended to the larger of our provincial Art Schools.

The influence of such specialists on the designs intended for the furnishing of buildings would be inestimable, and the *bond-fide* architectural student would, perhaps, be better advised than to submit works which, however clever they may appear on paper, are imprac-

ticable to the last degree. We do not wish to shock the susceptibilities of any earnest and well-intentioned Art master, but some of the designs this year for furniture, such as fire-places, cabinets, and other fittings, which we presume to have been worked out under the advice of some one or another of the fraternity and hall-marked by the examiners by awards

to our examination again, is well advised in studying his design in the round by means of a model, especially such a subject as a fountain. One is bound to admit, though, in this case the drawing is more suggestive than the model (shown by a photograph), in which it looks more the work of a painter-designer than an architectural designer. There is little else

MODEL FOR
CASKET
OMAR RAMSDEN



of bronze, silver, and gold medals, prove the system decidedly at fault. An instance of this kind may be noticed in the award of a gold medal for a particular set of designs. I have sufficient belief in the advance of public taste to think it would not pass muster at the hands of Sir Tottenham Court Road. It would be too impossible even for him.

I should find it too wearisome to give a detailed account of the Architectural designs, but Mr. George A. Paterson, of Glasgow, deserves special notice for his design for a memorial chapel. It is not often one sees such a sober treatment that hails from Glasgow; perhaps, however, its author was kept within bounds by the fact that it was submitted originally for the Alexander Thomson studentship. The design needs a perspective, in spite of Mr. Paterson's most understandable drawings. The examiners would have done well to have added a note to the effect that this style of workmanship is to be commended, and to have asked for more—as they occasionally do in some other departments. Mr. William Haywood, of Birmingham, who receives a gold medal for his Pugin drawings of last year, now submitted

to arrest notice in this department; but, in view of the extreme youth of the majority, it were kinder to pass on.

The award of a gold medal to Mr. Arthur Baxter, of Leicester, for a study for a library with its fittings, is one to which most will agree. The shelves are shown in a double row immediately above the dado, thus leaving a pleasing expanse of wall above. The whole of one end of the room is formed by a semi-circular bay, filled, however, with very badly-proportioned glazing. The transome is also at an ugly height. Had it ranged with the top of the shelves which run round the remainder of the room, it would have harmonised with the whole effect, and also have been the making of the window itself. In execution it would be found better to have had a continuous panelled dado. The chimney-piece is an interesting piece of design, quite in character with its surroundings, but this would have been better with its top cornice running through; and in the same way one would rather prefer to find the top line of shelves unbroken, thus giving due prominence to a feature like the fireplace. Anyhow, Mr. Baxter's is an exceedingly praiseworthy effort.



from
MODEL of
MACE
OMAR RAMSDEN
SHEFFIELD

AWARDED SILVER MEDAL

His drawings in themselves are amongst quite the best things there. There is much that is suggestive in Mr. Gillick's sketch model of a fireplace (a rough sketch of it accompanies this article), but his detail model disappoints one. Mr. Gillick has expended all his labour on the figure itself, which is good enough—excellent in fact—from a sculptor's point of view; but it might belong anywhere, and the

year indeed of the Competition. One thing I have omitted. Mr. Harold Nelson shows two frames of black and white designs in his best manner. He is a master of good lettering, and has some wonderful drawings in some of the plates. A gold medal he certainly should have had if only to separate him from others who have received silver medals, and whose work is really mediocre in comparison.

Chaucer; the very name of the Black Swan in Holborn suggested the four days' journey to York; the double court of the Belle Sauvage in Ludgate Hill was a place of residence as well as a starting and arriving place for coaches; every one in the London of Queen Anne knew that the great Grinling Gibbons lived there. These and many others were as familiar in our fathers' mouths as household words, as familiar as the names of our railway stations, Charing Cross, Cannon Street, Euston, St. Pancras, Waterloo, are now. Indeed, these old coaching inns were to the Londoners of the coaching days what the railway stations of modern London are to us.

THE DECADENCE OF THE OLD INNS.

But already in 1837, the accession year of the Queen, the year of "Pickwick," the old inns had seen their best days. The tenth chapter of that immortal work introduces to us Sam Weller, in the yard of the White Hart, High Street, Borough, which was then, as Dickens says, one of "some half-dozen old inns which have preserved their external features unchanged, and which have escaped alike the rage of public improvement and the encroachments of private speculation. Great, rambling, queer old places they are, with galleries, and passages, and staircases wide enough and antiquated enough to furnish materials for a hundred ghost stories." Sixty years of continuous public improvement have passed since those words were written, and the curious antiquarian could not now find, even in the obscurer parts of London, anything like the yard of the White Hart as Dickens saw it. The Old Bell in Holborn, one of the last of the galleried inns, has been doomed to destruction this very summer. But although the spacious yards of the old coaching inns have been requisitioned by modern London for modern purposes, there still exist many of the smaller inns of old times sacred to deep drinking and high thinking, especially in the last century, when tavern life was in its glory and the wits of our Augustan age worthily perpetuated the manners and customs of a still greater age



rest of the chimney, with all its opportunities, is apparently lost sight of. This is a pity, for at the first glance it has very considerable possibilities.

The wall fountain by Mr. Frank Marriott is marred by the basin, the character of which does not accord with the remainder, and this would be the more evident in execution, as it is intended, no doubt, to be a model for a fountain two or three times the size shown. To the panel and framing to the panel above the basin is undoubtedly due the award, and this in itself fully justifies it. The lettering over the panel is excellent. The modelled design for a set of electric bell pushes by the same author speaks for itself in the sketch given.

There is little else that rouses one beyond the full-size sketch model for a mace by Mr. Omar Ramsden, of Sheffield (the sketch given cannot, of course, give its full effect, and that of such parts as the coloured panels in the head), and the very charming model for a bowl by Miss Emily Arthur, of Glasgow, who obtains a bronze medal.

I remember, however, a very charming circular dish by Harry Theaker, of Burslem, which unfortunately has not been sketched for this article.

Amongst the metal work is to be found the usual number of wrought-iron gates sandwiched between more than ordinary stone and brick piers—work which shows an infinite labour, but depressing results.

Miss Kate Roberts, of New Cross, deserves mention for her sheet of designs for brasswork candlesticks, &c.

There are two interesting attempts at wood-staining by W. F. Blogg and F. R. Willeirs, of Chelsea, who gain silver and bronze medals respectively. The former's work too nearly resembles wood inlay.

I have no space to deal with the decorative designs in the flat, such as wall papers, cretonnes, &c., at least in a comprehensive manner, yet I must congratulate Mr. Geoffrey Alan Baker, of Canterbury, for his wall paper and frieze design, with which he has gained a gold medal. The figure in the frieze would, however, be rather swamped in a room of any size.

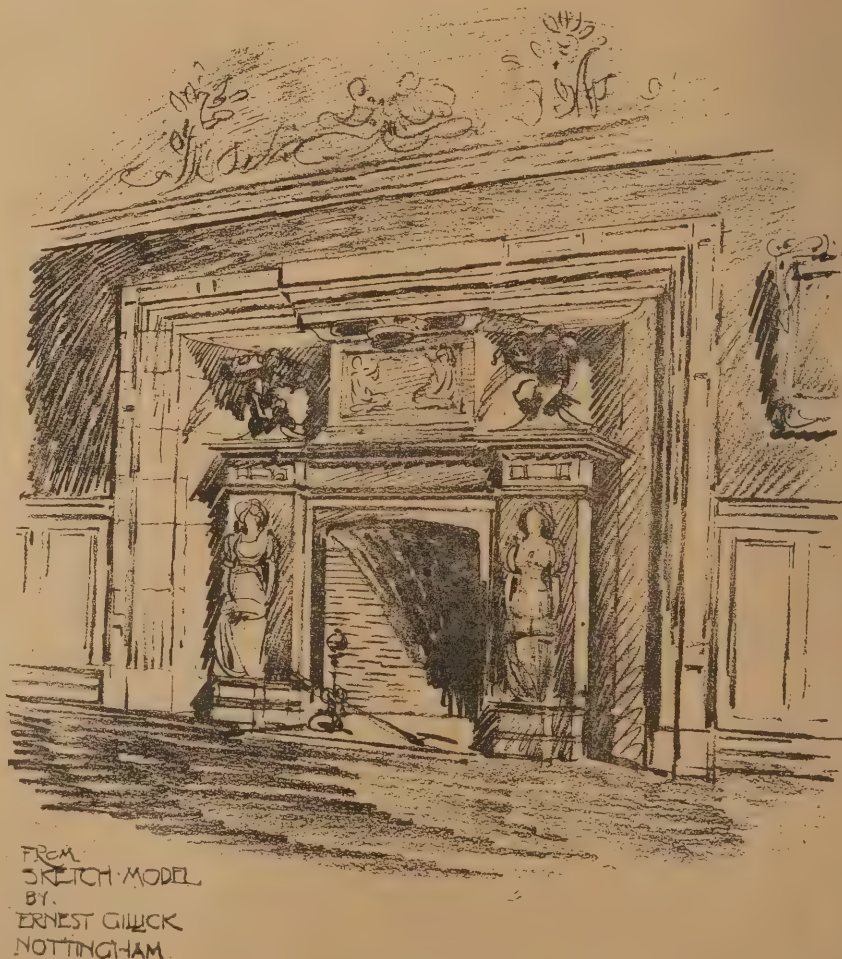
Newcastle sends excellent work in this class, and gains four silver medals, Miss Meta Lovgreen and Miss Elizabeth Davies scoring heavily in their designs.

Miss Mary Houston's stamped leather can only be compared with itself. It is the only work of its kind shown, and fully deserves the notice it has received in the shape of a silver medal. This lady also has by far the most charming design for a damask cloth in the Exhibition.

Beyond the time studies by H. Watson, of South Kensington, and some interesting poses of children by Albert Jackson, of Holloway, there is little to notice amongst the life drawings; but this subject is scarcely within Architectural criticism, and gives me the cue to end this notice of a very average

DISAPPEARANCE OF OLD LONDON INNS.

ONE by one, as they are swept away, the ancient taverns of London are fast disappearing before the march of modern improvement. No sooner has one well-known old hostelry fallen beneath the pickaxe than the turn of another comes. The quaint old-galleried inns of London could be counted by the score at the beginning of the century, and they were then, as they had always been, centres of travel. Their courtyards resounded with the clatter of hoofs and the rumbling of coach-wheels; their rooms were always full; their tables were crowded with hungry travellers; their names and their landlords were famous throughout the town. The Tabard in Southwark was as well known to our grandfathers as it was to the generation of



FROM
SKETCH MODEL
BY
ERNEST GILICK
NOTTINGHAM

which knew the Mermaid as the literary centre of London.

THE MAGPIE AND STUMP.

On the eastern side of Fetter Lane, nearly opposite the old White Horse, stands a public house, at which the casual passer-by would not give a second look, so absolutely commonplace is its red-painted, stuccoed exterior, unless, perchance, his eyes caught the words on the glass of the door: "Ye olde Magpie and Stump. Established 1600." Established 1600! An Elizabethan tavern, then, if the words speak truth, contemporary with the Mermaid itself, when Shakespeare was living not far away in Blackfriars? And so it is assuredly, not the identical Magpie and Stump as it appeared when first established, but still to a great extent the original house. Altered in the last century, altered in this one, it is still, in its internal arrangements, what it was on a momentous day in 1643 when London was ringing with the news of a great conspiracy in Fetter Lane and the arrest of traitors at the Magpie and Stump. And now they say the old house itself is to disappear, after close upon three hundred years of a chequered career, but there are no visible signs as yet of coming dissolution.

HIPPERHOLME COUNCIL OFFICES.

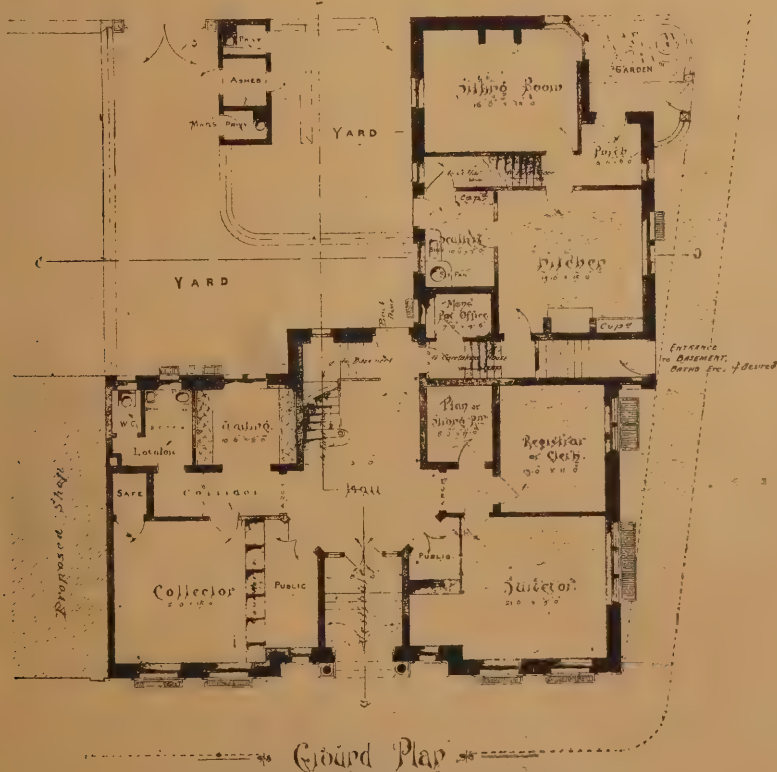
OF the ten sets of plans submitted for the proposed new Council offices, those of Mr. J. F. Walsh have been unanimously selected as the most suitable. The site for the new offices is being purchased from Messrs. Joseph Brooks and Sons. It has a frontage to the Leeds and Whitehall Road, is close to the old offices, and is well adapted for the purposes of public offices, with store yard behind. The plans show a two-story building in the Renaissance style. The site for the offices contains an area of 691 yards, the back portion for store yard having an area of 993 yards. On the ground floor is the principal entrance, 8ft. wide, with well-lighted hall, in which is the principal staircase. There are the surveyor's and collector's rooms on the respective sides of the entrance hall, 15ft. by 21ft., with plan room and strong room adjoining, also waiting-room, lavatory, and conveniences. The spare room may be used by the clerk, medical officer, or registrar, and adjoining this is the caretaker's house, which has



DISTRICT COUNCIL NEW OFFICES, HIPPERHOLME. J. F. WALSH, ARCHITECT.
ELEVATION TO LEEDS AND WHITEHALL ROAD.

a frontage to the side street, and is provided with sitting room, living room, scullery, bedrooms, and bathroom. The whole of the basement is cellared, and can be approached by a separate entrance from the side street and the back yard. Is intended to be used for lamp and general stores, plumbers' shop, and spare room, which can at any time be adapted for public slipper baths. On the first floor is the council room, 20ft. by 35ft., lofty and well lighted from the front and end, with panelled ceiling. Adjoining are the committee room, measuring 20ft. by 16ft., press room, 11ft. by 13ft., cloak room, lavatories, &c.

The staircase and landing are well lighted, and are to have seated recesses on each side. Over the board room are attic storerooms for the offices. The building will be built of local wall stones, with ashlar dressings and ornamental terra-cotta panels. The roof will be covered with green Buttermere slating, the Council Chamber will be finished in polished oak, whilst the rest of the woodwork will be of pine. The entrance hall floor is to be laid with mosaic, and the walls are to have a dado of ornamental tiling. The warming will be upon the most improved system of low-pressure water, with ventilating radiators and self-acting exhaust ventilators. In the yard behind the building provision is being made for the erection of an ambulance carriage house and store sheds. Provision is also being made for the erection at some future time of a road foreman's cottage, with stabling, cart sheds, and mortuary. The total estimated cost is £2000, and it is proposed to proceed with the works as soon as the sanction of the Local Government Board has been obtained.



HIPPERHOLME NEW DISTRICT COUNCIL OFFICES.

LAST week the Bishop of the diocese, in the presence of a large congregation, dedicated the new altar, east window, choir stalls, and organ at St. John's Church, Buxton. The window is from the studio of Mr. C. E. Kempe, of London, and depicts the Crucifixion; the organ, a four-manual electric instrument, by Hill and Son, of London.

In the peristyle of a house at Pompeii recently excavated two fine wall paintings have been found, probably transferred there from some other building. One of them represents a poetess reading to a female musician; the other a young girl leaning against a pillar, and conversing with a girl seated and wrapped in a large mantle.

THE contractors for the erection of the new Great Western railway station at Windsor have commenced the demolition of the old waiting-room which for many years has been used by the Queen, the Princes and the Princesses of Her Majesty's family, and the imperial and royal guests visiting the Castle. This salon, although small in its dimension, has been the scene of many historical events connected with the Queen's family, especially upon the occasion of royal receptions, departures, marriages, and funerals.

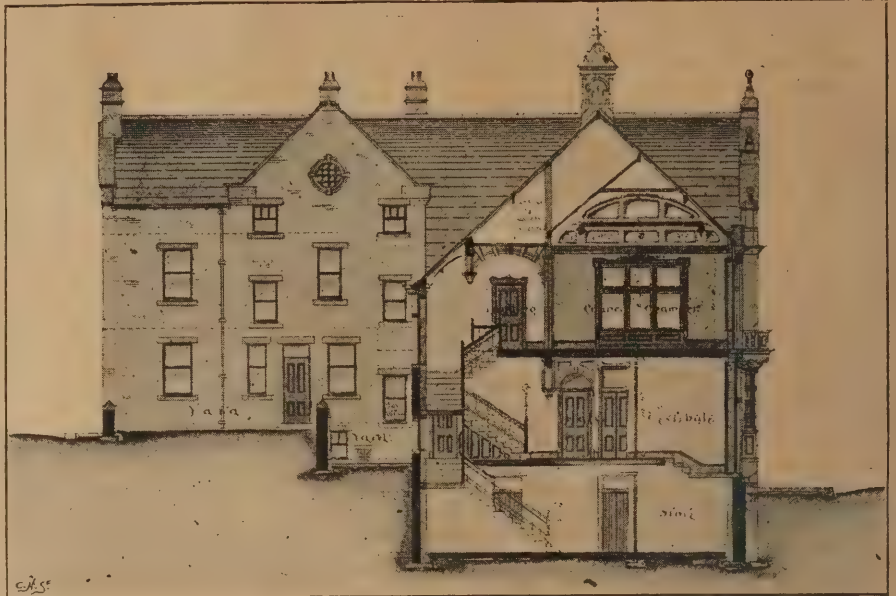
Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
August 25th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE contemplated demolition of the old buildings in Church Row, Hampstead, has called forth a vigorous protest. "The speculative builder, who is for ever going about the face of the earth seeking what he may devour, has now come to Church Row, and as I understand," writes a second correspondent, "is about to put his cloven foot into the pleasantest of quiet corners. It is one that most of us know, where many generations have found harmless satisfaction and peace, where Mrs. Barbauld dwelt, where Joanna Baillie, Walter Scott, Charles Lamb, and Du Maurier have trod in turn. Church Row is a place which no one ever thinks of without kindness and admiration; when it is knocked down, when teeming flats, built by contract and made beautiful by Linerusta ornament, stand in its place, how little shall we have in return for a very unique and beautiful thing, which all the speculative builders in the world will not be able to put up again."

SOME very curious and interesting relics of bygone ages are occasionally dredged up by the men employed by the Thames Conservancy Board. Not long since the head of a stone tomahawk (a roughly chipped piece of flint) was found, with a number of horns. A handsome bronze sword in a fine state of pre-



SECTION ON LINE A.B.

HIPPERHOLME NEW DISTRICT COUNCIL OFFICES. J. F. WALSH, ARCHITECT.

servation was recovered from the river some years ago, and was presented to a museum in Berkshire; but the most interesting, if not the most valuable, find was a bronze helmet, a portion of which had been gilded.

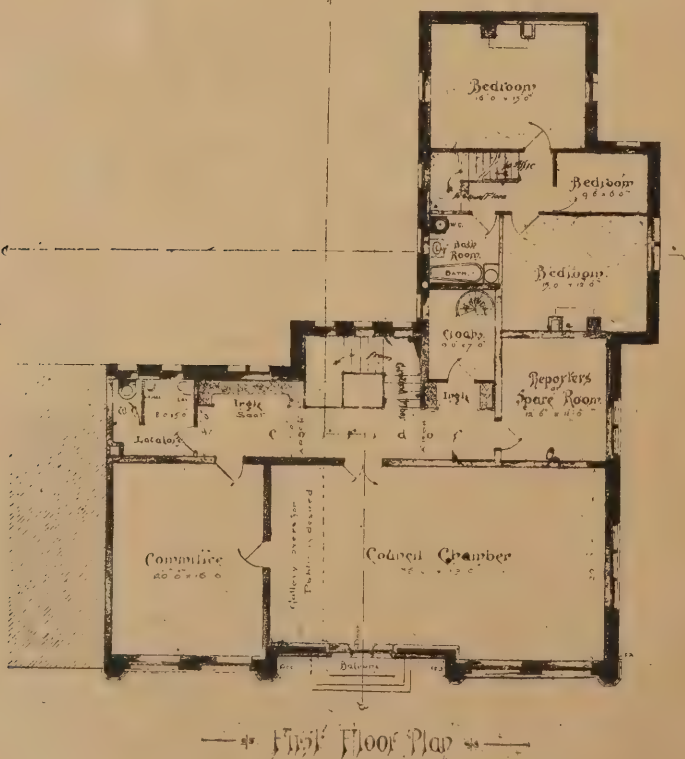
It is announced that a commencement will soon be made with the important structural alterations at the South Kensington Museum. The notorious "Brompton boilers," which have for so long been allowed to disfigure that part of the Cromwell Road, are to disappear at last, the First Commissioner of Works having officially informed the Science and Art Department that the work of demolition will be begun forthwith. The iron buildings which were erected three years since in the quadrangle in the very heart of the Museum, and which have been regarded as a serious source of danger from fire, are also doomed, and will at once be pulled down. Other structural changes have been decided upon with a view

to reducing the risk of fire. These works are consequent on the interim report of the Select Committee, and have, of course, no bearing on the question of the erection of a front for the Museum—a question which is not likely to be settled for some years to come.

VESTRYMEN of Westminster lately laid their heads together on the subject of street-paving, but wood has not been the result. On the contrary, after some rather enthusiastic discussions, they have decided to put down asphalt in Victoria Street. The considerations which have induced them to adopt this material are its greater durability, lower cost of maintenance, the increased facility with which it can be kept clean, and the example of the City of London in retaining its use. It is also asserted that it is less noisy than rutted wood, and but slightly more dangerous for horses. These arguments are, however, being vigorously combated by a section of the citizens, and for humane and other reasons a petition against the laying of asphalt in Westminster is being organised by Mr. Arthur J. Coke, the secretary of the Dumb Friends' League. The main argument in this document is that asphalt inflicts grievous suffering on beasts of burden, is dangerous to life and limb, and particularly unpleasant in the hot weather. The Westminster Vestry anticipates one of these arguments by declaring that its first regard is for the ratepayer and not for the horse-owner. Wood-paving in a thoroughfare like Victoria Street lasts only seven years. Asphalt is said to have a lifetime thrice as long, and on this account to enable vestries to command easier borrowing terms from the London County Council.

MR. BROOK, R.A., and Mr. Jackson, R.A., are making satisfactory progress with the Benson memorial for Canterbury Cathedral. The memorial takes the shape of a mausoleum, with a recumbent effigy of the deceased Primate, and a canopy; and Mr. Brock is doing the figure, and his brother Academician the main structure. This will absorb about £2000, and the balance of the fund, amounting to another £2000, is to be handed over to the Truro Cathedral Building Committee for the completion of some portion of that edifice. The work on which the money will be expended has, however, not yet been settled.

If price determines the value of pictures, then Professor Herkomer's "The Chapel of the Charterhouse" is the finest of the Chantry Bequest works, the trustees having paid the Artist £2200 for it. The only other oil paintings for which they paid anything like that sum were Vicat Cole's "The Port of



HIPPERHOLME NEW DISTRICT COUNCIL OFFICES.

London," and Orchardson's "Napoleon on Board H.M.S. Bellerophon," for both of which they gave £2000. In sculpture we find £2200 paid to Mr. Thomas Brock for his bronze "A Moment of Peril," while £2000 was the price of Lord Leighton's large bronze statue "An Athlete Struggling with a Python." These works are all now at the Tate Gallery, with the remainder of the Chantrey Bequest pictures, including the David Farquharson they bought this year.

THERE seems to be a considerable conflict of opinion among French artists as to the effect which the American tax on Art is likely to have on the demand for works produced in the Paris studios. Some of the leading painters view the imposition of a duty on imports of an Artistic nature with a certain degree of favour, as they argue that a 20 per cent. tax will not check the sale to American collectors of really fine productions, while it will put a stop to the flooding of the American market with bad canvases. Others regard this form of protection as certain to fail, because its effect will be felt, not by the foreign Artist, but by the buyers in America who cannot satisfy their æsthetic inclinations with home productions. But among French illustrators who have of late years found for their work a ready sale to American magazines there is much more feeling of alarm. With only a few exceptions they agree that the new tariff will seriously affect them; and they anticipate a marked falling off in their chances of placing profitably in America drawings for illustration. For this anticipation there certainly seems a good deal of reason.

THE excavations that have been going on for months past on a plot of ground belonging to Herr Schabb, a manufacturer at Treves, have resulted in the discovery of a Roman private house, which will excite the interest of antiquaries almost as much as the famous public buildings at Augusta Trevirorum. The front of the house lies parallel with the principal street of the old Roman city. A number of blocks which served as pedestals for the wooden or stone pillars of a portico still remain. The entrance is distinctly recognisable between two buttresses and an immense heap of stones. A long entrance hall running right through the house, from front to back, is intersected by another corridor, so that the gigantic building is divided into four parts. Side corridors lead into the rooms. Of these, the marble tessellated bath-rooms for hot and cold water and warm air lie side by side, and deserve special mention. The two latter were supplied with warm air through subterranean passages. The escape of the smoke was effected by means of hollow tiles laid on one another. The south-western rooms have cellars under them. In a light court in the same part of the house there is a well-preserved window, the first ever found in a Roman building. The most interesting thing, however, is the magnificent and richly-coloured mosaic floor, a rarity of the first order. Experts assign the building to the first half of the fourth century, when Augusta Trevirorum attained the zenith of its splendour under Constantine and his sons.

A CORRESPONDENT recently called attention to the fact that the restoration of St. Bartholomew-the-Great was still incomplete. "A considerable portion of the Church, he said, was as yet unredeemed, and in excellent preservation in the occupancy of Mr. C. Richards, farrier, Coach and Horses Yard, Bartholomew Close, by whom it was used as a stable. The remains referred to consist of some old arches, which are, we believe, the remnants of the cloister. The only obstacle to the restoration of this part of the original structure is, we presume, the expense. There has been considerable difficulty in raising funds for the work already done.

REFERRING to the National Competition at the South Kensington Museum, of which we give a notice elsewhere, Mr. S. J. Cartlidge, of the Society of Art Masters, says:—"Just now,

when some of the fitful attacks of perverse criticism directed against the Department of Science and Art have been to the fore, it is interesting to observe healthy and vigorous signs of appreciation of the valuable service which this much-abused Department has accomplished for the Art of our nation. Striking and unquestionably weighty testimony to this nationally beneficial work was borne at the annual dinner of the Society of Art Masters recently held at the Holborn Restaurant. Amongst the principal speakers were Sir Thomas Wardle, M. Solon, and Mr. J. J. Shannon, A.R.A., all experts, and familiar with the conditions of Art instruction. Sir Thomas Wardle, speaking as a manufacturer of Art fabrics, and as an undoubtedly high authority upon silks and silk productions, told his interested hearers how his former experience of the unsaleable nature of English designs in favour of foreign ones was now totally reversed, English designs being most in demand. In ascribing this wholesome result mainly to the efforts of our Schools of Art, he gave, amongst other evidences, an impressive instance within his own experience of an Art master (who happily was present to hear Sir Thomas's praise) having through the instruction given in his school revived a decayed and almost lost British industry. M. Solon, whose achievements are known wherever Art is vital in the world, and have received pre-eminent marks of distinction in the great international exhibitions, and whose writings are a rich source of reference in the museums and libraries of Europe, gave a vivid picture of the aggressively frightful state of British decoration at the time when, nearly thirty years ago, he came to settle in England. Its appalling impression upon him as a stranger was forcibly conveyed, and he contrasted the advanced condition of Decorative Art now with what he saw when first arriving upon our shores. He showed clearly that in Industrial Art immense strides are being made, so much so that Continental nations are distanced in the race. He emphatically, and from long-continued personal observation, put down the chief cause of this immense progress to the steady, undaunted, and systematic work of our British Schools of Art, and spoke in the highest terms of eulogy regarding their teachers and operations. Mr. Shannon, again, is a living proof of the sound instruction in another branch given under the department, he having had his own training in the central school at South Kensington."

"I HAVE been impelled to write this letter," Mr. Cartlidge continues, "feeling that the importance of the work done by our Art Schools is not as widely known as it might be. This work is well watched and closely examined by our Continental competitors, and in this connection it is interesting to know that Count Hofrath von Scala, director of the Museum of Industrial Art in Vienna, who recently visited the exhibition of national competition works, having also seen that of last year, stated that, in the opinion of most people in Germany, the progress made during the last few years by the Art Schools of Great Britain, especially in the practice of designing for manufacturers and for objects of Decorative Art, was most remarkable; and that no country in Europe had a system which was showing such excellent results. All this evidences how the modern trend towards the best in Art has been well fed and sustained, and, should nothing occur to hamper, restrain, or stifle the vigorous development now so distinctly to be seen, continued advancement must eventually place the nationally profitable labours of the Department and its schools beyond the reach of hostile criticism. In this world few things are perfect, and, just as faults have been eliminated in the past, as they arise they will no doubt be removed in the future, with due care that the life of the departmental tree with its many branches is not risked by pruning at the beginning of the season of fruition, transplanting into an unsuitable soil, or in any way repressing its natural conditions of growth. Moreover, it would be a happy state of things if in this sixtieth year of Her Gracious Majesty's reign the system of national Art education

which was practically initiated by the late Prince Consort should at last receive that full meed of appreciation from the public of our nation which it has well earned and richly deserves."

BRITISH artists have of late been gaining an unusual amount of recognition in Continental exhibitions. At Dresden a first-class medal has been awarded to Mr. William Strang for a picture of "Women Bathing"; and the German Government has purchased a case of portrait medals by M. Legros and a relief by Mr. Frampton. From this same Exhibition the Queen of Saxony has bought the terra-cotta group, "The First Reflection," by Mr. Alfred Drury, who has also gained a second-class medal at Brussels for his bronze "Circe." At Munich, where British art is very well represented, not only has a picture by Mr. Brangwyn been purchased by the Government, but first-class gold medals have been awarded to Sir Edward Burne-Jones for his "St. George and the Dragon" series, to Mr. C. H. Shannon for his picture, "The Wounded Amazon," and to Mr. J. M. Swan for his drawings of animals. All this implies an increase in the Continental appreciation of our national school.

It is said that Mr. Temple, the director of the Guildhall Art Gallery, has commenced to make arrangements for the show which is to be held there next year. This Exhibition is to illustrate French art of the eighteenth and nineteenth centuries, and it should prove to be one of the most important which has, as yet, been held in the City. If it is carried out with the same completeness that has distinguished its predecessors, it will afford a most valuable insight into the progress and development of the modern French School, and can hardly fail to secure very wide popularity. At present the Guildhall Galleries are being re-hung with the permanent collection.

THE Department of Science and Art of the Committee of Council on Education, London, has issued the following list of candidates to whom Royal Exhibitions (Art) and Local Scholarships (Art) have just been awarded: C. A. Palmer, Art student, Croydon; R. Osborne, Art student, South Kensington, R.C.A.; T. C. Bell, Art student, Edinburgh; C. J. Pibworth, Art student, Bristol, Queen's Road; J. T. Friedenson, Art student, Leeds; Mary Caldwell, Art student, Canterbury; N. Heard, Art student, Hull; A. S. Ryland, Art student, Cheltenham; T. Siminon, Art student, Bristol, Queen's Road; and L. T. Taylor, Art student, York, St. Leonard's; each take a Royal Exhibition. Marion E. Broadhead, Art student, Macclesfield; B. Blemens, Art student Holloway, Camden; H. Slinger, Art pupil teacher, Bradford Technical College; C. G. Lowther, sign writer and decorator, Hull; Gertrude Lydia Mary Syme, Art pupil teacher, Watford; W. G. Simmonds, Art student, South Kensington, R.C.A.; H. J. Lintott, Art student, Brighton; R. F. Wells, Art student, South Kensington, R.C.A.; J. F. Pettinger, Art student, York, St. Leonard's; R. H. Smith, Art student, Leeds; Hilda M. Giraud, Art student, Brighton; S. March, carver, Hull; J. M. Aiken, monumental draughtsman, Gray, Aberdeen; W. Taylor, tapestry weaver, Putney; J. E. Sutcliffe, lithographic artist, South Kensington; Leta Rosina Roff, Art student, North London; J. A. Hancox, Art student, Leeds; E. W. Cotton, Art student, Municipal, Birmingham; T. C. Dugdale, Art student, Cavendish Street, Colchester; and Ethel Beatrice May, Art student, Birmingham, each take a Local Scholarship. The Royal Exhibition is tenable for three years, and entitles the holder to free admission to the Royal College of Art at South Kensington or the Metropolitan School of Art, Dublin, for the session of about forty-two weeks each year, and during that time to a maintenance allowance of 25s. a week and third-class railway fare for one journey to and fro, each session, between the home of the scholar and London or Dublin. The Royal Exhibitions are held on the condition that the exhibitor regularly attends the course of instruction laid down for him, complies with the rules laid

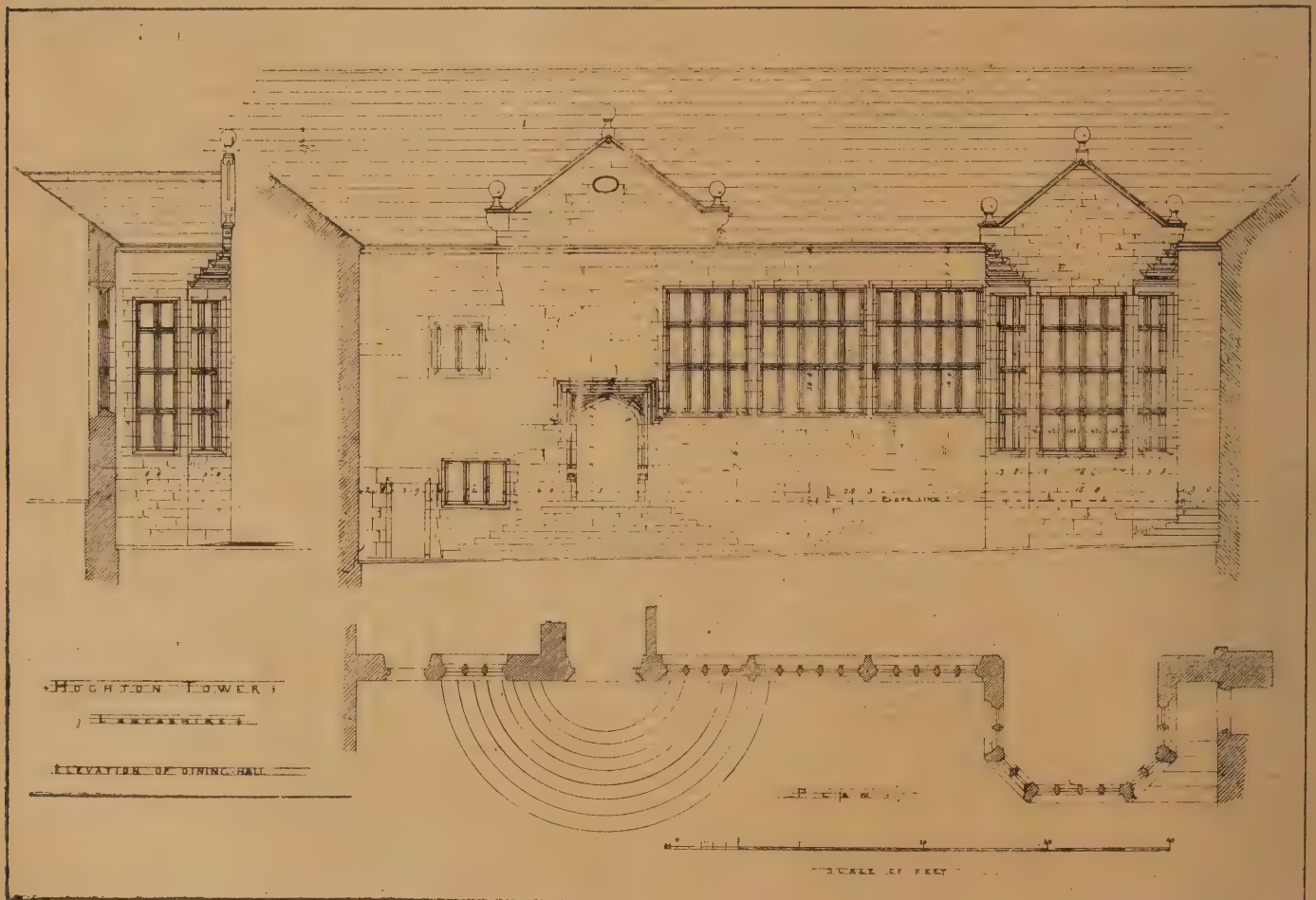
down for his guidance, and makes satisfactory progress. The allowance may be withheld or reduced in the case of a student who fails to attend the Royal College of Art or the Metropolitan School of Art at the prescribed time. A Local Scholarship is tenable for three years, with a maintenance allowance of £20 a year, at any School of Art under the Department which is open at least three days and five nights a week, and which will remit the fees for instruction of the holder.

MEESRS. T. B. SANDERSON AND SON, of Newcastle, write: "With reference to the proposed alterations to the Guildhall Buildings, may we suggest that before the Committee of the Newcastle Exchange pledge themselves to meet the necessary expenditure, it would be advisable for them to inspect the plans of a building which it is proposed to erect in Collingwood Street. If the members of the Exchange care to have premises in this very central position, within four minutes' walk of

the subject of Church Row, Hampstead, will you allow me to add a few words to what they say on the subject, and inform the public what are the schemes which are actually in existence for rebuilding and the steps which are being taken, under the National Trust, to preserve the street in question? That Church Row should be threatened at all is but one more example of the evil men do bring after them. The late Metropolitan Board of Works appears, before its decease, to have carried out some improvements, or alterations, in Hampstead, the result of which can be seen in the new buildings in the street into which Church Row debouches—notably the block on the right-hand side as you enter the Row opposite the Church. Perhaps but for this opening up Church Row might still have remained in seclusion, and not have attracted the attention of the speculating builder. The site, however, of the 'fine, old, well-set-back house' at the right of the Row as you enter opposite the Church, with its cottages and

small informal meeting of those interested in the preservation of Church Row will be held early next week, at which I hope Mr. Ashton and Mr. Woodward will be present, and after that I trust it will be possible to issue a definite practical proposal."

WHEN the Prince of Wales, a few weeks ago, opened the National Gallery of British Art, or the Tate Gallery, the building was not completed. Since then the workmen have been very busy, and last week the public were admitted for the first time to the magnificent structure which occupies the site of the old Millbank Prison. Nearly 3000 persons passed the turnstiles on the opening day. It was noteworthy that the exterior of the gallery, ornamented as it is with some fine specimens of the modern sculptor's art, was closely examined by numbers of the visitors. The surroundings of the place are as yet in a most chaotic condition. In front the works in connection with the temporary bridge which the



WITH THE A.A. IN LANCASHIRE. HOUGHTON TOWER. MEASURED AND DRAWN BY W. A. WADDINGTON FOR THE JOHN O'GAUNT SKETCH BOOK.

the Quayside, two minutes from the Central Station, and just opposite the General Post Office, in connection with which direct communication could be established, the owner is prepared to provide an Exchange 144ft. by 40ft. by 26ft. in height, lighted by dome ceiling lights, news room, smoking and luncheon rooms, together with all the other usual accessories and conveniences, on a scale thoroughly in keeping with the requirements of the city and district. The whole of this accommodation, we may add, would be provided on the ground floor. The contiguity of the proposed Exchange to the large block of new offices about to be erected in Collingwood Street would appear to further add to the feasibility of the scheme."

MR. AMBROSE M. POYNTER, Secretary to the National Trust for Places of Historic Interest or Natural Beauty, in a letter to the Times says, "As I see that Mr. Ashton and Mr. Woodward have addressed letters to you on

garden, it is now proposed to clear and build over, this being done, as Mr. Woodward says, by the freeholder. The houses on either side of the other end next the churchyard have each a strip of land next them, and in the case of each of these it is the ambition of a speculating builder—in one instance, I believe, of the builder of an incredibly hideous block of flats which, just finished, now desolates the upper end of Frognaal—to acquire the house and land and erect a block of buildings over the site thus obtained. I am happy to believe that in these two last cases there are obstacles which will most likely make it impossible for the schemes to be carried out. As regards the remaining house, the National Trust purposes to act in the manner which Mr. Woodward suggests and, if possible, acquire the property in question. A substantial sum has already been offered us for the purpose by an inhabitant of Hampstead, and I trust that when the details of the scheme can be made public others will come forward as generously. A

County Council is building across the Thames are carried almost up to the doors, and on the other three sides the weed-grown rubbish heaps are anything but grateful to the eye. Once inside, however, the spectator quickly forgets the environments in contemplating the magnificent collection of the works of British artists which grace the walls. The paintings purchased under the Chantry bequest fill two apartments. There are eighteen specimens from the famous Watts Collection, and ninety-six of the best examples of the work of the British school in the past forty years have been transferred from the National Gallery. The whole forms an admirable exhibition, and one well worthy the inspection of the hosts of critics, artists, and others who flocked to Millbank on the opening day.

"Referring to my letter on the danger of fire at the South Kensington Museum," writes Mr. M. H. Spielmann, "I may point out as a

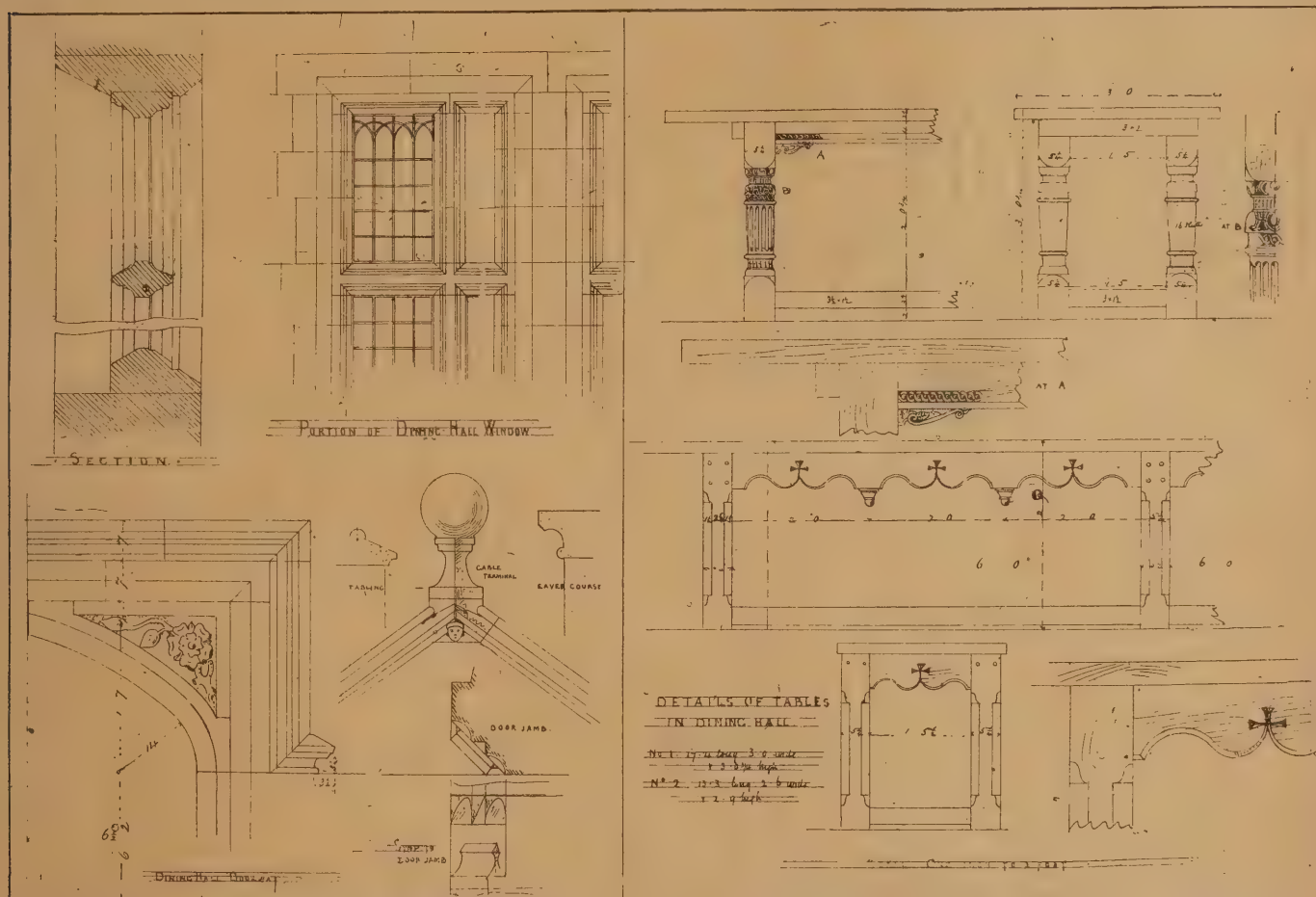
matter of interest that I am informed, in consequence of my exposure of the dangerous character of the structure known as the Imperial Institute Concert Hall, application was made to the County Council surveyor (Mr. Blashill) to make an examination of the building, and that his condemnation of it has been sweeping and emphatic. The building, I would remind you, like the temporary building of the Royal College of Music, is in immediate contact with the walls of the Oriental ceramic courts."

A RESPONSIBLE and an eminently respectable journal—to wit, the *Spectator*—has had the hardihood to allow sentiments to appear in its pages reflecting upon the beauty of Birmingham. The writer, in speaking of the "Tidiness of Rural England," ventures to contrast the clear country with the dark and dreary streets of the Midland metropolis. He even compares Birmingham with Liège. True, the contrast between Birmingham on a rainy day and Liège under bright sunlight is hardly a fair comparison; but it has aroused the ire

room at University College, London, where are exhibited on shelves and tables the recent finds from the ancient city of Oxyrhynchus (Behnesa), about 140 miles south of Cairo, on the edge of the Lybian Desert. We are indebted to the researches of Professor F. Petrie and the learning of P. B. Grenfell and A. S. Hunt, of Queen's College, Oxford, for this exhibition. "It is heart-rending," said the curator, who was present at some of the excavations, "to think that every year thousands of mule loads of precious relics—amongst them papyri, whole archives of first, second, and third century Greek and Roman Christian literature—are simply being carted off as rubbish, and used as manure. If instead of £2000 now subscribed by England and America the civilised world would give £50,000 a year to the work, and give it now, what might not be recovered? But in fifty years, when probably the money will be forthcoming over and over again, it will be too late, and we shall have to pay in excess for small returns—any fragments that can be gathered up—as for the

reason it is proposed to ask the vestry of Hendon and the Hendon District Council to contribute, should the terms of purchase be favourable.

A VERY great alteration in the immediate neighbourhood of the Mint will shortly be carried out. Under the County Council's General Powers Act, 1897, a new road is to be constructed from Whitechapel to the Tower Bridge. The one drawback to the usefulness of this bridge has been the difficulty of approach from the East End. This will be entirely altered by the proposed improvement. The road will be carried in a straight line from Little Tower Hill to Royal Mint Street, and its construction will involve the destruction of a large number of poor-class dwellings, many of them of wood, which ought to have been condemned years ago. The passing of the road under the railway will necessitate the removal of three brick arches, whose place will be taken by an iron girder bridge. It was in one of these arches that



WITH THE A.A. IN LANCASHIRE. HOGHTON TOWER. MEASURED AND DRAWN BY W. A. WADDINGTON FOR THE JOHN O'GAUNT SKETCH BOOK.

of the Birmingham Daily Post—"the caricature is utterly ignorant and mendacious." Is not the centre of the town remarkable for the openness and picturesqueness in the character of the thoroughfares and principal buildings? The chief streets rank among the finest in England, and so on the Post argues. Still Birmingham is to blame for placing two of its finest buildings—the Victoria Law Courts and the new hospital—far away from the centre of the city, and it is even now about to pull down one of its finest old Churches in the most prominent position amongst its great buildings, to make way for spick and span modern shops or business premises. There is room for criticism, but much has been done, especially in Birmingham, to make our huge mammoth towns more shapely and worthy of their true importance in the march of progress.

ANTIQUARIES and lovers of history may well gnash their teeth with rage at the apathy of the civilised world as they walk through the

Sibylline Books." Of course, it is not only whole archives of ancient literature that may be lying there, to be carted away for manure, but other priceless relics. Statuettes in wood, one exquisitely finished and perfect; a nude negress in ebony, 1400 B.C.; copper vessels and perfect jars of Oriental alabaster, 4000 and 5000 B.C.; necklaces and strings of jewels in superb variety and patterns, daily filched and scattered incontinently!

THE Parks Committee of the London County Council is negotiating with the owners of Golder's Hill Estate with a view to purchase on behalf of the public some twelve acres of the land as an extension of Hampstead Heath. The ground adjoins the West Heath, and is beautifully laid out, a stream, which is one of the sources of the Brent, here perfectly unpolluted, running through it. A small portion lies in the parish of Hampstead, but the larger part is in Hendon, and therefore outside the boundary of the county of London. For this

one of the latest of the Whitechapel murders took place. The improvement is worth the attention of municipal bodies outside London from the fact that four railway companies who have extensive goods yards in the locality are brought by the Act under the Betterment Clause.

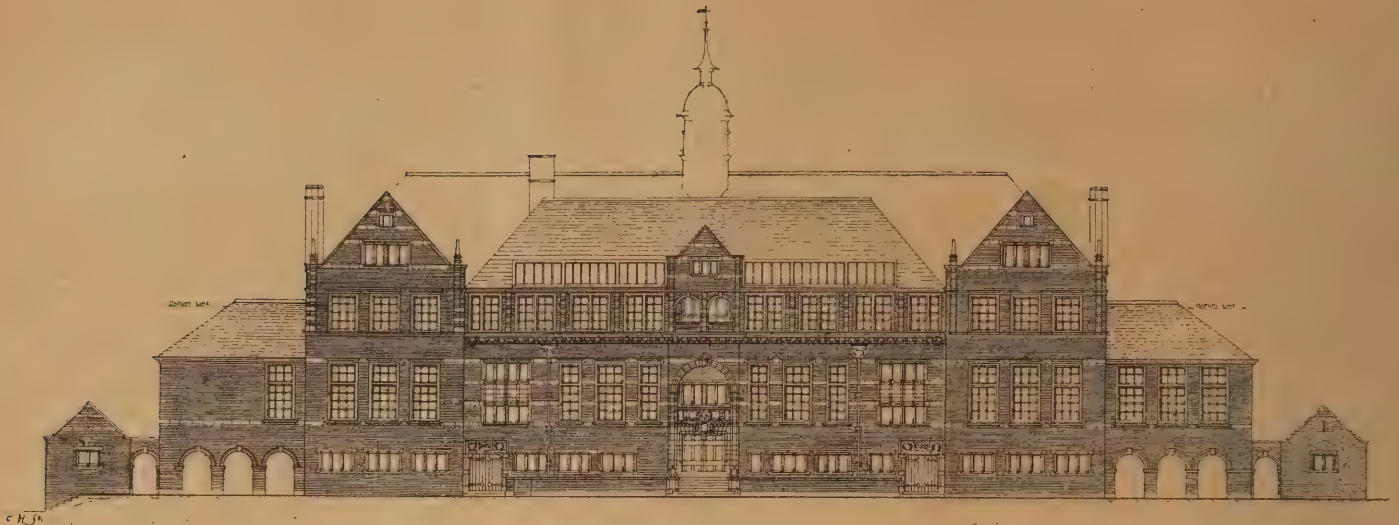
TANFIELD HALL, situated on the Water of Leith at Canon Mills, has been demolished. For some years it has been used as a bonded store; but the space having become too small, it has to give place to new and extensive stores. On the 18th of May, 1843, when the 300 ministers left the General Assembly of the Auld Kirk in St Andrew's Church, they repaired to this hall amid a whirl of enthusiasm. Here the Free Church was constituted, and its first Assembly held, over which Dr. Chalmers presided as first Moderator. The famous picture, "Signing the Deed of Demission," gives a very accurate idea of the construction and dimensions of the hall in those days. In 1847 the

proud distinction, heading the list of the eight principal Schools of Art with thirty-four medals and fifty-seven total prizes as against twenty-three medals and fifty-six total prizes won by the students at the next best school on the list—Birmingham. Glasgow is justly proud of its School of Art, which, in the coming session, aspires, if we may judge from the recently-issued prospectus, at eclipsing its past record of useful work in Art tuition. A local prize scheme has been adopted with a view to assisting such a happy result. The Governors of the School grant twelve free studentships, tenable for the ensuing session to students of the evening classes, to be awarded upon the result of the session's work of each individual student. In addition, special prizes are offered to encourage students of both the day and evening classes, and will cover all the subjects prominent in the School's curriculum. Architecture, it may be noted, receives due attention at the Glasgow School; the Governors seem to possess a true sense of its importance as a branch of

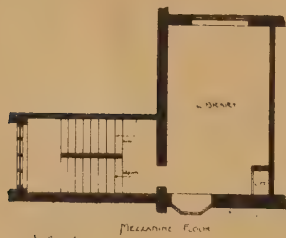
WESTWOOD SCHOOL FOR THE SCARBOROUGH SCHOOL BOARD. MESSRS. UNSWORTH AND NEWBERRY, ARCHITECTS.

THE Glasgow School of Art ranks foremost amongst such institutions in the kingdom. In the National Competition it has just attained

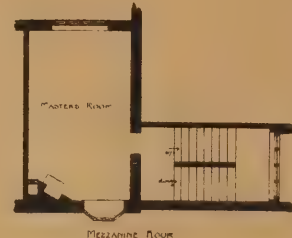
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NORTH-WEST ELEVATION



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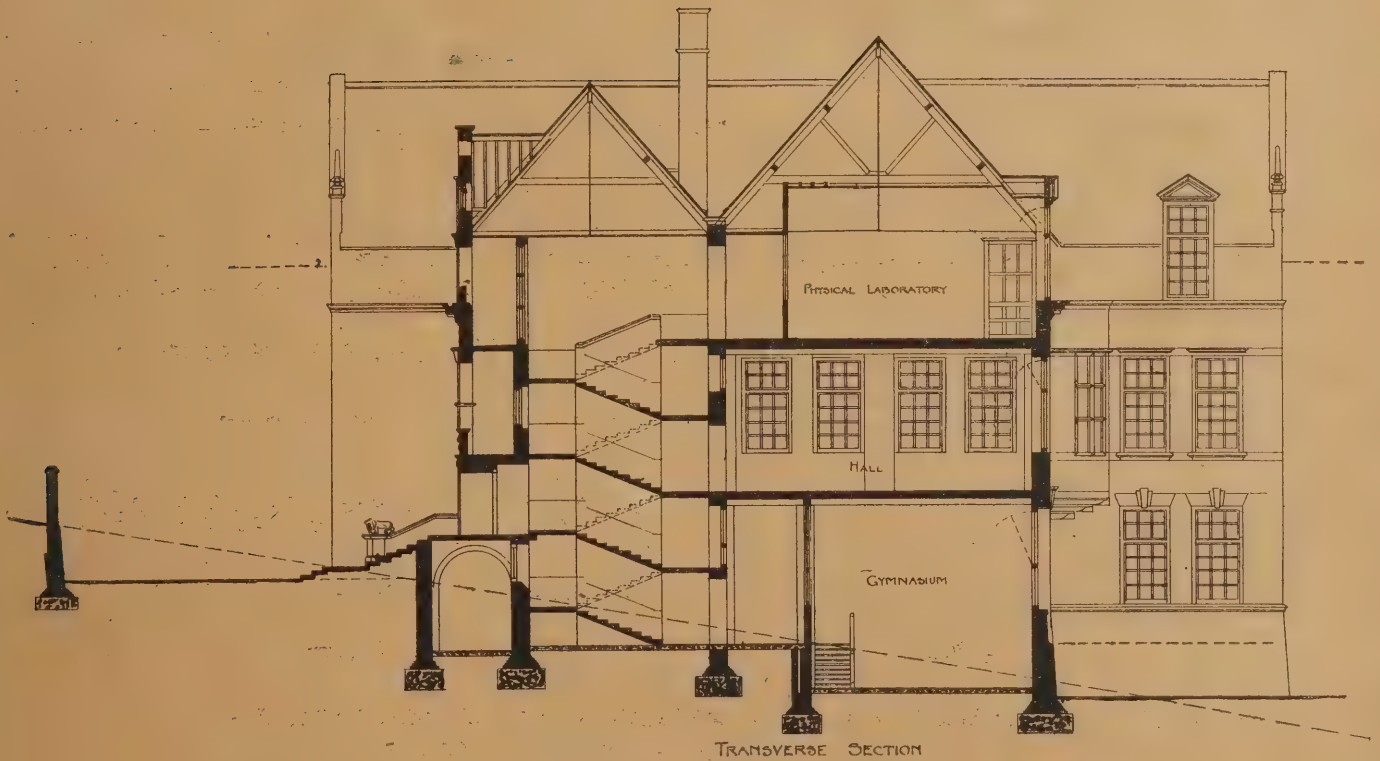


MEZZANINE FLOOR



PLAN OF PRINCIPAL FLOOR

WESTWOOD SCHOOL, FOR THE SCARBOROUGH SCHOOL BOARD.
MESSRS. UNSWORTH AND NEWBERRY, ARCHITECTS.



WESTWOOD SCHOOL, FOR THE SCARBOROUGH SCHOOL BOARD.
MESSRS. UNSWORTH AND NEWBERRY, ARCHITECTS.

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Surveying and Sanitary SUPPLEMENT.

AUGUST 25TH, 1897.

TUNNEL SCHEMES.

THE recent opening of the Blackwall Tunnel may give some interest to a brief account of some other great tunnel schemes, some of which we may expect to see carried out before many years have passed. The Bridges Committee of the London County Council has just obtained an Act for a tunnel for foot-passengers between Millwall and Greenwich, costing £96,000, and another has been proposed between North and South Woolwich. The scheme for an English Channel Tunnel is too well known to require further mention. Of late the project for a tunnel under the North Channel, to connect Ireland with Scotland, has received considerable attention, and is likely to receive more, inasmuch as the distance is about the same as between Dover and Calais, while there are not the same objections from military quarters as there were in the case of the tunnel to France. Probably the next great tunnel to be completed will be that under the Simplon, to connect Switzerland with Italy. This tunnel will be fourteen and a half miles long, or five miles longer than the one under the St. Gothard, which is the longest railway tunnel in the world. The negotiations between the Swiss and Italian Governments are now practically complete, and work is expected to commence almost immediately. One of the great difficulties encountered in these Alpine tunnels is the heat arising from the great depth below the surface. This has to be overcome by pumping in fresh air, which serves at the same time for ventilation. The Hudson River Tunnel at New York was abandoned before completion owing to the difficulty of raising more capital, but some people in New York have offered to supply half the money necessary to finish it. It will probably, therefore, be completed before long, as it would be of immense importance to the city, and would carry the traffic to and from New Jersey in connection with the elevated railway.

A STRANGE TUNNEL AT CREWE.

Perhaps one of the strangest tunnels of all is that at present being constructed under Crewe Station, which will be left free for passenger traffic, only goods traffic being conducted through the tunnel. The scheme for making a tunnel under the river Medina to connect East and West Cowes was one in which the late Prince Henry of Battenberg took great interest. A company was formed to carry out the project more than three years ago, but operations have not yet been commenced. The difficulties of the Panama Canal tempted a Mr. C. F. Cole, of Chicago, to suggest that some of them might be obviated by a tunnel through which ships could pass if their masts were specially constructed, either telescopically or by being hinged. A ship entering would pass between a pair of cranes, the yards having been first placed in a vertical position by the crew, and the masts would be lowered, to be raised again by a similar process on emerging. Coming back again to the old world, we find that a scheme for com-

munication through the mountain barriers that separate France from Spain has made substantial progress. The project consists in the establishment of two international lines of railway—one from St. Giron to Lerida, and the other from Claron to a point on the line from Saragossa to Barcelona. Each tunnel would be about five miles long, and would take ten years to pierce.

ANOTHER ELEVEN MILES IN LENGTH.

Copenhagen, owing to its isolated position on the island of Zealand, is cut off not only from the rest of Denmark, but from the rest of Europe, by the Great Belt between Zealand and Funen, and the Little Belt between Funen and the mainland. In order to overcome these natural barriers, a scheme for through land communication between Copenhagen and the rest of Europe was brought forward about four years ago. As regards the little belt, there would be no difficulty in constructing a cantilever bridge across it. But the Great Belt would be too wide for a bridge, notwithstanding the opportune existence of an island in mid-channel. Danish engineers, therefore, recommend for this part of the scheme a tunnel, which would be eleven miles in length. The bridge would cost £700,000, and the tunnel not far from a million and a quarter, making a total of nearly two millions. There is a third passage between the North Sea and the Baltic, namely, the Sound, which lies between Zealand and Sweden. If this channel were also tunnelled, there would be direct through communication between Norway, Sweden, Denmark, and the rest of Europe. Some years ago a proposal was presented to the Governments of Denmark and Sweden in this connection. The plan, which was drawn up by a French engineer, M. Alex. Rothe, was for a tunnel passing under an island in the middle of the Sound. It was to commence a little east of Copenhagen, and to terminate a little south of Malmo. The submarine portion would be six miles long. The total cost was put at a million and a quarter. The scheme was received with enthusiasm in the three Scandinavian countries, but the matter has temporarily dropped. Prince Edward Island, in the Gulf of St. Lawrence, is separated from the mainland of Canada by the Northumberland Straits, which are blocked in winter by fields of Arctic ice. When the island entered the Dominion, part of the agreement was that communication should be kept up with the mainland all the year round. As it has been found impossible to do this by steamer, the Government of the island has approved plans for the construction of a tunnel tube $6\frac{1}{2}$ miles in length, which is intended to lie on a plateau at the bottom of the Straits. The depth is from 36ft. to 80ft., and the cost is put at one million sterling.

A TUNNEL BETWEEN ITALY AND SICILY.

The length of a submarine tunnel between Italy and Sicily would be 43,296ft., and the greatest depth of water 360ft. Its direction from St. Agata to Punta del Pizzo is almost due north-west and south-east. According to geologists, the bottom of the Straits of Messina consists of crystalline rock (granite

gneiss and mica schists). This scheme, though brought forward in 1882, has not yet been proceeded with. Besides the Mont Cenis, the St. Gothard, and the Arlberg tunnels, which have already been pierced, and the Simplon tunnel, which is about to be commenced, other schemes for piercing the Alps have from time to time been brought forward. The Bavarian press has warmly advocated a scheme for tunnelling under the Lackmann Pass. A Zurich professor has given much attention to a project for tunnelling Mont Blanc, from Courmayeur to Pre St. Didier. The tunnel would have to be driven through a formation of anhydrous gypsum. The temperature, which depends not only on the vertical depth but on the configuration of the mountain, would be from 86 deg. to 122 deg. F., as against 84 deg. in the Mont Cenis and 87 deg. in the St. Gothard tunnels. Preliminary surveys were also at one time made for a tunnel under the Great St. Bernard. Coming nearer home again, we may mention the project for a tunnel under the Forth, which was entertained even as late as 1891, but which, so long as the Forth Bridge stands, is hardly likely ever to be revived. Two other tunnels, which are almost certain to be made some day, are worth mentioning. One would connect the railway north and south of the Humber, and give the southern lines a terminus at Hull. Parliamentary sanction was at one time obtained for carrying out this scheme. The other would connect the Isle of Wight railways with the South Western. It is not improbable that some of the above tunnels will be constructed before long. Tunnel construction has recently made great advances; improved rock drills, nitro-glycerine, and other explosives facilitate operations in rock, and the use of air pressure enables tunnels to be constructed in soft and water-bearing strata at shallow depths.

ABERDEEN'S SEWAGE SCHEME.

THE Sewerage Committee of the Aberdeen Corporation has had under consideration a very large scheme for the improvement and extension of the sewerage system in the city. The Committee reports that it has considered the tenders for the outfall portion of the scheme, and accepted the lowest contract for the work, at the price of £8072 4s. 3d., Mr. George Pirie, the contractor for the Brechin and Edzell Railway, being the successful offerer. The sewer is intended to discharge an enormous mass of sewage material into the Dee near Victoria Bridge, and be a menace not merely to the development of what is rapidly becoming one of the most favourite promenade and recreative centres about the city, but to the public health of the district; for the sewer about to be constructed is of a very large size, much beyond the ordinary—as, indeed, was the studied intention, seeing it is to form the outfall for the sewerage system of the southern and south-western side of the city. The portion covered by the contract runs up as

far only as the foot of Portland Street, where a collecting chamber is to be situated as the junction of the sewers from various directions. From this collecting chamber it will run for a distance of 200 yards as a 4ft. sewer; it then becomes enlarged, running towards the river side, and for 200 yards further it will be of 5ft. diameter. Enlarging as it proceeds, it becomes, as it passes down the Riverside Road to Victoria Bridge, for a distance of 120 yards, a sewer of 5½ft. in diameter; near the Victoria Bridge it enlarges still more, and runs for over 100 yards as a 6ft. sewer; and, finally, for a distance of about 80 yards, it runs as a sewer of 6½ft. in diameter, and discharges its torrent at an outfall 9ft. wide by 4ft. deep into the waters of the Dee 200 yards below the Victoria Bridge. The sewer is to be of brick and cement, and circular in shape until the outfall is reached. The outfall will be of elliptical form, and constructed of granite and cement; and for its construction a cofferdam of considerable depth will be sunk in the river. As already indicated, the sewer is intended to form the outfall for the sewage collected at the junction chamber near the foot of Portland Street. It is expected to serve not only the Ferryhill district, but the Holburn, Broomhill, and Ashley localities, already thickly populated, and to which new streets of houses are being added every year. It will therefore convey to the river a very considerable quantity of sewage from the first, but ultimately, if the extension of the city proceeds as it has been doing of late, and for which provision is being made in the very magnitude of the sewer itself, it will pour into the river so much noxious matter as may well cause uneasiness to the residents in the neighbourhood and the public generally. It is the prospect of this that has caused many whose interests are directly threatened to turn their attention to the proposed scheme, and now that its character has become apparent,

MANY OBJECTIONS

are being urged against it which are not to be lightly regarded. In the first place, it is pointed out that constant pouring of a flood of sewage into the Dee at that place will operate very disastrously against the amenities of the neighbourhood. There is an outfall sewer at the riverside, which has been an eyesore as well as a source of public danger for the last twelve years. But this outfall is but 18in. in diameter, whereas the proposed new outfall, as before stated, is to be 9ft. wide by 4ft. deep, and although the sewage matter is to be discharged below the level of low water, the danger and objectionable character of the proposal is held to be thereby not a whit reduced. Indeed, it is feared that, at certain times, the beautiful riverside esplanade, which has been made and ornamented at very considerable cost, may not be useable. Aberdonians are rather proud of the extension of the city which is proceeding, on the south side of the river, but it is urged that the streets directly overlooking the Dee, from the south side, are hardly likely to continue popular if the river immediately opposite these dwellings is, at every succeeding tide, to be charged with the surging sewage from a third part of the city. In the lower portion of the ground, fronting the river on the south side, cottages have begun to make their appearance, but it is feared that if this large outfall at this place is insisted on the development of building in that connection will receive an effectual check. The objection which applies to the sewerage from the residents on the south side of the river applies with all but equal force to those on the north side, in the numerous works on the Reclaimed Land, and to the dwellings that overlook the river from the higher parts of the Ferryhill district. The body whose interests are most directly threatened in this matter, and whose attention is now being directed to the new scheme, is the Harbour Board, whose approval is necessary for the new scheme before it can be proceeded with.

THE Pudsey Urban District Council has appointed Mr. Joseph Jones, of Eccleshill, Surveyor to the Council, at a salary of £140 per annum.

THE NIDD VALLEY WATERWORKS.

THE members of the Bradford Town Council recently visited the Gouthwaite compensation reservoir in connection with the new Nidd Valley waterworks. The party drove to Wath, and then walked to the huge quarry adjacent to the reservoir. The discovery that good stone existed at that spot was an extremely fortunate one for the Corporation, since a line of rails has been laid from the quarry to the reservoir itself, and the necessary stone, in huge blocks weighing from three to ten tons each, is conveyed by gravitation on cars down the line of rails to where it is required. The huge size of the quarry impressed the members of the Council very much, especially when they realised that practically all the stone taken from that great chasm has already been used in the construction of the dam of the reservoir. The party then walked along the tramway to the embankment of the reservoir. The general features of this part of the Nidd scheme have frequently been described. Roughly, they may be said to consist of throwing

A HUGE BARRIER OF SOLID MASONRY

across the Nidd Valley, and thus damming up the river, and converting that part of the valley above the structure into a lake, two and a half miles long and half a mile wide. The dam itself has, of course, to be of immense strength, in order to withstand the enormous pressure of the water, and its maximum depth is 110ft. and its width 74ft. The mere task of erecting such a colossal structure is obviously no light one, but the engineers have had other difficulties to face. The river Nidd, which flows down the valley, is in times of flood very impetuous, and before any work at all could be done the stream had to be diverted. When the Bradford Town Council visited the works last year the Nidd was flowing in an artificial channel, and that portion of the dam which stretches across the ordinary course of the stream was being constructed. Since then the river has been turned back into its old channel; but in doing so one precaution was taken which shows how thoroughly the Waterworks Committee and its engineers watch every little point connected with the work. That portion of the dam stretching across the bed of the river has been almost completed, and two large culverts, the openings of which are controlled by valves, have been left in the dam, in order to allow the river to flow through. But the engineers realised that if the river came down in flood these culverts might not be sufficient to carry away all the water. The inevitable result of that would have been that the foundations of the remainder of the dam, which are being sunk to a great depth below the surface, would have been flooded, and very great expense would thereby have been occasioned. To avoid this the engineers have left

A BREACH IN THE DAM

which can be easily filled up, but which is more than sufficient to allow all the water of the river to pass through it, even in rainy weather. With this exception the dam is at one end practically completed. The remainder has been erected to various heights, tapering down to the foundations at the west end. To the average ratepayer the work would seem to have progressed with painful slowness, and at first it is difficult to realise that about 300 men are constantly at work there. But the size of the undertaking grows on the visitor as he descends into the huge trench, 100ft. deep, and realises how many millions of cubic feet of earth have been excavated, and how many millions of tons of stone and concrete have already been swallowed up in the construction of that huge mass of masonry. No one could inspect the work without realising the thoroughness with which it was being done, and the care which was being taken to prevent any recurrence of such disasters as the one at Holmfirth forty-five years ago. The fields above the dam presented a refreshing appearance, and Gouthwaite Hall seemed as interesting as ever. In two or three years' time, when the reservoir is completed, these will all

be covered with water, but probably the lake thus formed will add to, rather than detract from, the natural attractions of that portion of the Nidd Valley. The party afterwards drove to Ramskill. Some of the houses have been entirely renovated, and paint has been used rather freely—changes not wholly unconnected, perhaps, with the advent of so many workmen into that district. When the reservoir is completed the water will come almost to Ramskill Church. The present road between Gouthwaite and Ramskill will be submerged, and a new road, higher up the hillside, has been constructed between those places. The Gouthwaite Reservoir is being constructed to compensate the users of water lower down the valley. Above Gouthwaite the Corporation has power to construct three service reservoirs to

SUPPLY WATER TO BRADFORD,

but these will probably not be made for many years yet. A conduit is now being constructed from the Nidd Valley to Gouthwaite. By using the streams which this conduit intercepts, and by erecting a small dam at Woodale, a supply of about four million gallons a day can be obtained. The construction of this conduit is now very far advanced. Eighteen bridges have been practically completed, and of the 25,000yds. of pipe-laying over 22,000yds. have been finished. The three tunnels on the line of the conduit—Ram Stang Tunnel (2486yds. long), Burn Tunnel (1840yds.), and Greenhow Tunnel (6204yds.)—have been difficult works, but Burn Tunnel is now practically completed. Of Ram Stang Tunnel only between four and five hundred yards are yet to construct, and Greenhow Tunnel has been pierced for three-fifths of the distance. Of the 20,000 lineal yards of cut and cover work less than 4000yds. remain to be done. Practically eight or nine tenths of the work connected with the present instalment of the scheme, which would cost £800,000, has been completed.

Surveying and Sanitary Notes.

THE largest water-storage reservoir in the world is now in process of construction by the City of Boston, U.S.A., its intended capacity reaching the enormous figure of 65 billions of gallons, or enough to supply that city for 3½ years, and four times as much as the capacity of all its existing waterworks reservoirs. The vast capacity named is twice that of the new Croton reservoir of New York, thrice that of the six reservoirs of Birmingham, thirty times that of the Cochituate of Boston, and will hold more water than Boston's inner harbour. The dam is located at Clinton, and the vast volume of water, covering over 4000 acres, will be entrapped and retained by a dam some 1250ft. long, 127ft. high above the ground, and some 158ft. high above its rock foundation. No such immense engineering work has ever before been undertaken in New England.

MR. ROBERT BICKNELL COHEN resumed at the Croydon Town Hall his enquiry on behalf of the Local Government Board into the application of the Corporation for sanction to borrow the sum of £32,000 for the erection of new waterworks at Waddon. Mr. Bray, for the opposition, argued that the time had not arrived for the proposed extension, the corporation's reserve supply of water at Addington being sufficient to carry them on for at least six or eight years, and therefore the expenditure of this money was quite unnecessary. He also contended that the water derived from the well recently bored at Waddon would be polluted. Mr. Baldwin Latham, of Victoria Street, Westminster, said he had tested the temperature of the water in the proposed new well, and found it to be the same at a depth of 50ft. and 250ft. respectively, namely, 51deg. It ought to have been nearly 56deg. The inference he drew from that was that there was a slight downward

movement in the chalk. It was, in his opinion, polluted water, and would be particularly dangerous in the low-water period. The existing wells in Surrey Street were dangerous at times.

At the quarterly meeting of Ipswich Town Council, the Mayor (Mr. F. T. Cobbold) presiding, the Paving and Lighting and General Street Cleansing Committee reported: 1. That St. Edmund's Road, from Henley Road to Warrington Road, was a highway not repairable by the inhabitants at large, and they recommend the Council to order notices to be given requiring the owners or occupiers in the said street to sewer, level, pave, metal, flag, channel, and make good the same, and provide proper means for lighting according to the plan and sections made under the direction of the surveyor, and submitted for approval. 2. As to purchase of blocks for wood-paving, the Committee had invited tenders for the supply of 250,000 as ordered by

the Council, and that of Messrs. Jewson and Sons, of Norwich, being the lowest, had been accepted, viz.: For the first 50,000 £5 5s. per 1000, for the second 50,000 £5 7s. 6d. per 1000, and for 150,000 £5 10s. per 1000.

The Sewerage Committee reported to the Aberdeen Town Council last week that, acting under powers from the Council, it had accepted the offer of Mr. George Pirie, contractor, to construct a new main outfall sewer into the Dee at a cost of £8072. The Town Clerk, Mr. Gordon, read a letter from Messrs. Wilsone and Duffus, advocates, on behalf of the Dee District Fishery Board, objecting to the proposal on the ground that it would have an injurious effect on the salmon fishings in the river. Mr. Cooper said he objected entirely to an outfall sewer entering the river near Victoria Bridge. It was utterly wrong to go on with the scheme. Treasurer Bisset stated that although the size of the sewer would be much increased, the volume of sewage would

not be materially increased for a considerable time. The object of enlarging it was to take away overflow water, which was continually causing flooding in the Ferryhill district. The report of the Committee was adopted.

The Birstall District Council and its Surveyor have often been at variance. Mr. Fred Clark, the official in question, has just tendered a month's notice to leave, and given as his reason for so doing "persecution that he had been subjected to." He stated that since coming to Birstall a part of the Council had been the Surveyor's enemy, and he had been the target for them to shoot at. As to his abilities, which had been so much questioned, he referred certain Councillors to his previous employers, and told them that he held a certificate of the Society of Engineers. It was contended by some that the Surveyor had been most shamefully and abominably used, and by others that he had brought all the trouble upon himself.—The resignation was accepted.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Aug. 27	Mardy and Merthyr Vale, Glamorgan—Police Stations	County Council	T. M. Franklen, County Clerk, Westgate-street, Cardiff.
" 27	Llanfihangel Gneu'r-glyn—Dwelling House	Capt. D. Williams	G. Jones and Son, 17, George-street, Aberystwyth.
" 27	Llanbadarn—School Room		J. H. Williams, Quebec-road, Llanbadarn Fawr.
" 27	Lewisham, S.E.—York Ledgers, &c., in Cemetery	Lewisham Vestry	Superintendent, Cemetery Lodge, Lewisham.
" 27	Shillelagh, Ireland—Relathing and Slating of Roofs	Guardians	J. Hopkins, Clerk to the Guardians, Shillelagh.
" 28	Bournemouth—Church Tower and Steeple		T. Stevens, Richmond-chambers, Bournemouth.
" 28	Belfast—House, Antrim-road		J. A. Hanna, 102, Donegal-street, Belfast.
" 28	Cardiff—Truant Industrial School	School Board	W. H. D. Caple, 1, St. John's-square, Cardiff.
" 28	Charlton Kings, near Cheltenham—School Buildings	School Board	J. Villar, 1, Cambray, Cheltenham.
" 28	Blackburn—Extension, &c., to Electricity Works, Jubilee-street	Corporation	E. M. Lacey, 10, Delahay-street, Westminster.
" 28	Droydsden, Lancs.—Sludge Press House	Urban District Council	W. Curry, Engineer, Council Offices.
" 28	Weston-super-Mare—Laundry Buildings		S. J. Wilde, Boulevard-chambers, Weston-super-Mare.
" 30	Dewsbury—Twenty-eight Houses, &c.	Pioneers' Industrial Society, Limited	Holtom and Fox, Westgate, Dewsbury.
" 30	Grangemouth—Church at Kerse-road		J. P. Goodsir, Newmarket-street, Falkirk.
" 30	Harrington, Cumberland—Two Houses, Shop, &c.	J. Roberts and Sons	W. G. Scott and Co., Victoria-buildings, Workington.
" 30	Harrington, Cumberland—Club Room and Two Cottages		W. G. Scott and Co., Victoria-buildings, Workington.
" 30	Norham-on-Tweed—Alterations, &c., to Farm		Messrs. Hamilton, Mount Carmel Farm, Norham-on-Tweed.
" 30	Stotfield, Elgin—Villa		J. Milne, Architect, Elgin.
" 30	Culter—Dwelling House		Jenkins and Marr, 16, Bridge-street, Aberdeen.
" 30	Gunnislake—Villa	J. Walkom	L. V. Bennett, Sanitary Inspector, Gunnislake.
" 31	Bristol—Alterations to Asylum	Board	H. E. Withycombe, Council House, Bristol.
" 31	Salisbury—Sorting Office	H.M. Commissioners of Works	H.M. Office of Works, 12, Whitehall-place, S.W.
" 31	Plumstead—Walling, &c.	Parish Burial Board	H. H. Church, William-street, Woolwich.
" 31	Willessey, nr. Evesham—Converting Cottage to Chapel	Wesleyan Trustees	Wesley Chapel House, Evesham.
" 31	Falmouth—Residence and Studio	H. C. Sheppard, Flushing	H. W. Collins, Architect, Penryn-street, Redruth.
" 31	Llanwrtyd Wells, Wales—Detached Villa		H. Heather, Andrew's-buildings, Queen-street, Cardiff.
" 31	New Barnet, Herts.—Detached Residence		E. F. Taylor, 70-72, Chancery-lane, and New Barnet.
" 31	Rathmines, Ireland—Bank Office	National Bank, Limited	W. Butler, 58, Mountjoy-square, Dublin.
" 31	Uxbridge—Fire-escape House	Urban District Council	W. L. Eves, 54, High-street, Uxbridge.
" 31	Port St. Mary, Douglas—Parochial Hall	Directors	D. Lacey, Hon. Sec.
Sept. 1	Ramsgate—Wall Round Cemetery	Burial Board	Hinde and Son, 57, Queen-street, Ramsgate.
" 1	Stainforth—Wash Kitchen to Cemetery Lodge	Burial Committee	J. Dyson, Silver-street, Stainforth.
" 1	Isle of Thanet—Burial Ground Wall	Burial Board	Langham and Cole, 70, High-street, Ramsgate.
" 2	Shrewsbury—Engine House, &c., Chimney Shaft, &c.	Corporation	Town Clerk's Office, Shrewsbury.
" 3	Bridlington—Offices at Workhouse	Guardians	S. Dyer, Architect, Bridlington Quay.
" 4	Leith, Scotland—Public Baths	Corporation	—Simpson, Architect, Town Hall.
" 4	Kilkenny—Plumbing at District Asylum	Commissioners	Board Office, Custom House, Dublin.
" 4	Chippenhams—Cottage Hospital		F. H. Phillips, Town Clerk, Chippenhams.
" 6	Mytholmroyd, Yorks.—Vicarage House		Jackson and Fox, 22, George-street, Halifax.
" 6	Brentwood, Essex—Boiler House	Committee of Visitors	W. Gepp, Clerk to Committee, Chelmsford.
" 7	Gravesend—Police Cells, &c.	Corporation	Borough Surveyor, Town Hall, Gravesend.
" 7	Nelson, Lancs.—Walverden Board School	School Board	T. Bell, 14, Grimsshaw-street, Burnley.
" 7	Bolton—Inland Revenue Office	H.M. Commissioners of Works	Hon. R. B. Brett, Secretary, 12, Whitehall-place, S.W.
" 7	Highgate Hill, N.—Workhouse Infirmary	Islington Board of Guardians	E. Davey, St. John's-road, Upper Holloway.
" 11	Llanfihangel-y-Creudlyn—Restoration of Church Tower	Restoration Committee	J. P. Evans, Vicarage, Llanfihangel-y-Creudlyn.
" 13	Devon—Lighthouse, Dwellings, &c., Foreland, nr Lynton	Admiralty	C. A. Kent, Trinity House, London, E.C.
" 13	Camberwell—Railing and Gates	Vestry	O. S. Brown, Vestry Hall, Camberwell.
" 20	Winwick—Asylum	Lancashire Asylum Board	J. Beaman, Delf Farm House, Winwick, near Warrington.
No date.	Burnley—Stables, Coach-house, &c., at Reedley	J. Grimshaw	C. Parsons, 9, Grimsshaw-street, Burnley.
"	Ashton-under-Lyne—Doctor's Residence, Katherine-st.		J. Eaton, Sons, & Cantrell, Stamford-st., Ashton-under-Lyne.
"	Buxton—Retaining Wall	Urban District Council	Garlick and Flint, Architects, Buxton.
"	Colchester—Addition to "Cannons"		C. E. Butcher, 3, Queen-street, Colchester.
"	Colchester—House, Beaconsfield-road	E. Hennemeyer	C. E. Butcher, 3, Queen-street, Colchester.
"	Derby—Converting Seven Houses		Coulthurst and Booty, 4, Albert-street, Derby.
"	Dover—Alterations, &c., to Hospital Wards		Fry and Gardener, Cannon-street, Dover.
"	Ferry Hill, Durham—Reconstruction of Billiard Room		Estate Office, Windlestone, Ferry Hill.
"	Ilkley—Hall and Parish Rooms		W. J. Morley, 269, Swan-arcade, Bradford.
"	London, N.—Higher Grade Schools, Wood Green	Tottenham School Board	A. M. Butler, 16, Finsbury-circus, E.C.
"	Nottingham—Brick Garden Walling-in		W. H. Radford, Pelham-chambers, Nottingham.
"	Seascale—Brickwork of Two Houses		W. J. Postlethwaite, Seascale.
"	Wakefield—Shop Premises in Kirkgate	W. H. Franklin	Gelder and Kitchen, 76, Lowgate, Hull.
"	Wakefield—Two Semi-detached Villas		W. Wrigley, 4 and 6, Westgate, Wakefield.
"	Kilmorna, County Kerry, Ireland—Creamery	Cork and Kerry Creamery Company, Ltd.	Company's Offices, 15, George's-quay, Cork.
"	Belfast—Public Laundry, The Abbey	New Granville Hotel Company, Limited	W. J. Fennell, Architect, Chichester-street.
"	London—Pulling Down and Rebuilding Stores	R. T. Jolly	J. W. Dunford, 100c, Queen Victoria-street, E.C.
"	Church Gresley—Wesleyan Chapel		R. C. Clarke, Prudential-buildings, Nottingham.
"	Hartley Wintney—Jubilee Hall		T. E. Colcutt, 36, Bloomsbury-square, W.C.
ENGINEERING—			
Aug. 27	Brighton—Groynes, &c., on Foreshore	Town Council	F. J. Tillstone, Town Clerk, Brighton.
" 27	Manchester—Catch Pits, &c., at Sewage Outfall, Davy-hulme	Rivers Committee	City Surveyors, Manchester.
" 27	Bath—Laying Telephone Cable Pipes, &c.	Urban Sanitary Association	City Surveyor, Bath.
" 28	Craiova—Water Supply	Corporation	The Mairie, Craiova, Roumania.
" 30	Derby—Dynamo and Engine	Corporation	H. F. Gadsby, Town Clerk, Derby.
" 30	Montrose—Steel Boiler for Asylum	Asylum Board	T. Young, 4, West Regent-street, Glasgow.
" 31	Cairo—Aqueducts		Inspector of Irrigation, 3rd Circle.
" 31	Cairo—Iron Bridge	Minister of Public Works	Public Works Department, Cairo.
" 31	Paignton, S. Devon—Sea Walls, Slipways, &c.	F. E. Singer	E. Bradon, 165, Manor-street, Clapham, S.W.
Sept. 1	Gainsborough—Water Tower, &c.	Urban District Council	H. Riley, Engineer, Council Offices, Gainsborough.
" 2	Douglas, Isle of Man—Cast-iron Pipes, &c.	Corporation	Town Clerk, Douglas.
" 4	Bristol—Trench Work, &c.	Waterworks Company	Company's Office, Small-street, Bristol.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—(Continued).			
Sept. 4	Sheffield—Condenser, Cast-iron Standards, &c., Boiler. (Three Contracts)	United Gaslight Company	F. W. Stevenson, Engineer, Sheffield.
" 5	Tiverton—Reservoir, &c.	Rural District Council	Dymond and Parsons, Bampfylde House, Exeter.
" 6	Ledbury—Reservoir and Water Mains	Urban District Council	J. Garrood, Clerk to Council, Ledbury.
" 7	Egton-cum-Newland—Bridge Works	Main Roads and Bridges Committee of County Council	Bridgemaster, 19, Brazennose-street, Manchester.
" 8	Hertford—Water Mains, &c.	Corporation	J. H. Jevons, Borough Surveyor, Hertford.
" 16	King's Lynn—Bridge over River Nar at Castleacre	Freebridge Rural District Council	R. H. Aidham, Clerk, King's Lynn.
" 21	Port Elizabeth, Cape Colony—Electric Lighting	Town Council	Davis and Soper, 54, St. Mary-axe, London, E.C.
No date.	Buckingham—Heating Apparatus at Workhouse	Guardians	C. Bell, 3, Salters' Hall-court, Cannon-street, London, E.C.
FURNITURE—			
Aug. 28	Christchurch, Hants.—Furniture and Fittings to Workhouse, Fairmile	Guardians	Workhouse, Fairmile.
" 30	Plymouth—Dual Desks for Schools	School Board	E. C. Cook, 18, Princess-square, Plymouth.
IRON AND STEEL—			
Aug. 30	Hendon—Iron Fencing and Gates	Urban District Council	S. S. Grimley, Council Offices, Hendon.
" 30	Alexandria—Locks to Doors and Windows		Chief of Administrative Council, Cairo.
" 30	Dublin—Cast Iron, &c.		Chief Ordnance Office, Lower Castle Yard, Dublin.
" 31	Bradford—Miscellaneous Goods	Gas and Electricity Supply Committee	Mill-street Gasworks.
" 31	Salcoats, Scotland—Steel Galvanised Buckets	Commissioners	J. Miller, Surveyor, Salcoats.
" 31	London, E.C.—Rails, Fishplates, Nuts, &c.	The Nizam's Guaranteed State Railways Company, Limited	Company's Office, 271, Winchester House, 50, Old Broad-street, E.C.
Sept. 4	Sheffield—Steel Pipes and Furnace Door Aspens, &c. (Two Contracts)	United Gaslight Company.	F. W. Stevenson, Engineer, Sheffield.
" 7	Neath—Girder Tramrails, &c., and Reconstruction of Tramways (Two Contracts)	Corporation.	D. M. Jenkins, Engineer, Gwyn Hall, Neath.
No date.	Tunbridge Wells—Second-hand Iron Pipe, &c.		W. B. Hughes, Architect, Tunbridge Wells.
PAINTING—			
Aug. 28	Everton and Mathersea, Notts.—Painters' Work	Magnus Charity	G. Tallents, Clerk to Charity, Newark.
" 28	Bradford—Painting, &c., to Central Free Library	Corporation	J. H. Cox, City Surveyor, Town Hall, Bradford.
" 30	Stockton-on-Tees—Painting, &c., to Cemetery	Corporation	Borough Engineer, Stockton-on-Tees.
" 31	Chelmsford—Painting, Graining, &c.	Essex Standing Joint Committee	Clerk, Shire Hall, Chelmsford.
No date.	Halifax—Painting Fourteen Houses at West Vale		R. Horsfall and Son, 15, George-street, Halifax.
ROADS—			
Aug. 27	Wood Green, N.—Road Works	Urban District Council	C. J. Gunyon, Surveyor, Town Hall, Wood Green.
" 28	Heywood, Lancs.—Road Works		J. A. Settle, Borough Surveyor, Heywood.
" 28	New Malden—Road Materials	Urban District Council	T. V. H. Davison, Glebe Side, New Malden.
" 28	Clayton-le-Moors, Lancs.—Paving	Urban District Council	A. Dodgeon, Surveyor.
" 28	Littlehampton—Flints	Urban District Council	A. Shelley, Clerk, Town Offices, Littlehampton.
" 28	St. Lawrence Intra, Thanet—New Road	Burial Board	Langham and Cole, 70, High-street, Ramsgate.
" 28	Wakefield—Private Street Works		City Surveyor, Town Hall, Wakefield.
" 28	Chesterfield—Broken Granite	Urban District Council	G. A. Busbridge, Surveyor, Eckington, near Sheffield.
" 30	Hendon—Road Works and Materials (Two Contracts)	Urban District Council	S. S. Grimley, Council Offices, Hendon.
" 30	East Preston—Cartage of Flints	Rural District Council	A. Shelley, Town Offices, Littlehampton.
" 30	Penarth, Wales—Street Works	Urban District Council	E. J. Evans, Council Offices, Penarth.
Sept. 1	Aylesbury—Road Works	Urban District Council	J. H. Bradford, 2, Rickford's-hill, Aylesbury.
" 7	Branksome, Dorset—Road Works	Urban District Council	S. J. Newman, 3, Tennyson-bldgs., Ashley-rd., Branksome.
" 7	St. Luke's, London—Street Paving and Miscellaneous Goods	St. Luke's Vestry	Surveying Department, Vestry Hall, City-road, E.C.
" 8	Hertford—Road Works	Corporation	J. H. Jevons, Borough Surveyor, Hertford.
" 13	Hornsey—Hard Wood Paving, &c.	Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
No date.	Andershaw, Lancs.—Flagging	District Council	J. H. Burton, 2, Guide-lane, Hooley Hill.
"	East Molesey—Kentish Flints	Urban District Council	Surveyor's Office, Walton-road, East Molesey.
"	Enfield Lock—Making and Sewering Castisfield-road		Messrs. Cawter, Surveyors, Cheshunt.
"	Leeds—Repaving and Levelling		—Mosley, 6, Wormald-row, Leeds.
"	Castleford—Paving Yard and Road		Secretary, Co-operative Society, 28, Carlton-st., Castleford.
"	Farsley—Paving, &c., Springfield Mills	R. Gaunt and Sons	W. D. Gill, Architect, Summerville Tee, Stanningley.
SANITARY—			
Aug. 27	Shillelagh—Sewerage and Water Supply Works	Guardians	S. Hopkins, Clerk, Shillelagh.
" 27	Shillelagh—Pipe Sewer and Catch Pit	Guardians	J. Hopkins, Clerk, Shillelagh.
" 28	Llandaff—Pipe Sewers, &c.	Rural District Council	W. Fraser, 17, Queen's-chambers, Cardiff.
" 28	Radcliffe, Lancs.—Sewerage Works (Two Contracts)	Urban District Council	Engineer, Council Offices, Radcliffe.
" 28	Abertillery—Main Sewer, &c.	Urban District Council	J. McBean, 1, King-street, Abertillery.
" 29	Ware—Sewerage	Rural District Council	Bailey, Denton, Son, & North, Palace-chambers, Westminster.
" 30	Tendring, Essex—Sewers, &c.	Rural District Council	F. Beesley and Son, 11, Victoria-street, Westminster.
" 30	London—Pipe Drains, &c.	William Ruddock	Pollard and Tingle, 31, Old Queen-street, London, S.W.
" 31	New Hunstanton—Alteration, &c., to Sewage Outfall	Urban District Council	J. C. Walker, Surveyor.
" 31	Swaffham, Norfolk—Removal of Sludge	Urban District Council	Surveyor, Council Offices, Swaffham.
" 31	Witney, Oxon.—Sewerage Works	Urban District Council	C. Nicholson Lailey, 16, Great George-street, Westminster.
" 31	Streatham and Tooting—Scavenging	Wandsworth Board of Works	H. G. Mills, Clerk, East Hill, Wandsworth.
Sept. 1	King's Lynn—Outfall Sewer	Corporation	E. J. Silcock, Borough Engineer, King's Lynn.
" 1	Wembley—Sewerage Works, &c.	Urban District Council	C. L. Whitehead, jun., Engineer, Council Offices, Wembley.
" 2	Leicester—Sewerage Works	Highways and Sewerage Committee	E. G. Mawbey, Borough Engineer, Town Hall, Leicester.
" 4	Bakewell—Sewerage Works, &c.	Rural District Council	Sterling and Swann, Town Hall, Chapel-en-le-Frith.
" 4	Leith—Public Baths		—Simpson, Architect, Town Hall, Leith.
" 6	East Molesey—Sewerage Works, &c.	Urban District Council	Council's Offices, Walton-road, East Molesey.
" 7	London, E.C.—Sewerage Works, &c.	Shoreditch Vestry	J. E. Dixon, Surveyor, Old-street, E.C.
" 13	Hornsey—Pipe Sewers, Manholes, &c.	Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 31	Bury, Lancs.—Art Gallery and Public Library	£75, £50, £25	J. Haslam, Town Clerk, Bury.
Sept. 1	Wadhurst, Sussex—Designs for Memorial Hall, Club, &c.	£20, £10	W. Larcumb, Wadhurst.
" 4	New Ferry, near Birkenhead—Sewerage Scheme	£50, £35, £20	Lower Bebington Urban District Council.
" 14	Windsor—Sewerage Scheme		Rural District Council.
" 22	Ipswich—Design for Higher Grade School (Local)		J. H. Hume, Clerk to School Board, Ipswich.
" 25	London, S.W.—Designs for Public Baths	£100, £50, £25	Battersea Vestry, Lavender Hill, S.W.
" 30	Blaenau Ffestiniog, Merioneth—Plans, &c., for County Police Buildings	£15 15s.	Standing Joint Committee.
Oct. 1	Skipton—Designs for Cottage Hospital	£15, £5	Cottage Hospital Committee.
" 1	Morecambe—Plans, Estimates, &c., for Sewerage Scheme	£100	Urban District Council
" 8	Ludlow—Electric Lighting Scheme	£20	Corporation.
Nov. 30	Leeds—Designs for Meat Market and Abattoir	£100, £50, £25	Corporation.
Dec. 4	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
1898.	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
Jan. 1	Newcastle-on-Tyne—Infirmary (Local)	(No First.) £150, £100, £50	Secretary, Building Committee, Newcastle.
" 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	J. Nicholson, Hon. Sec., Pelham-street, Carlton, Australia.
Feb. 28	New York—Model Sun Dial in Plaster	500 dol., 250 dol.	Sec. National Sculpt. Soc., 215, West 57th-street, New York.
No date.	Brighton—Artisans' Dwellings (Local)	£75, £25	F. J. Tillstone, Town Clerk, Brighton.
"	Fylde, Lancs.—Workhouse	£150, £100, £50	Union Guardians.
"	London, S.E.—Two Libraries	£25 each	Lewisham Vestry.

IS THE PARTHENON DOOMED?

THE Parthenon is doomed. These words are calculated to bring sorrow to the heart of every lover of Greece and Grecian culture. Perhaps many, who have only seen the stately pile from below, will be inclined to doubt the statement thus brusquely made. Indeed, when one sees the ruin from a distance, or looks up at it from among the pillars of the western façade, it seems so strongly built, so secure, that the visitor has no thought of decay and ruin, but leaves the place under the impression that the Parthenon will continue to defy time for countless ages. But the fact is, according to a correspondent of the Times, that ever since the earthquakes of several years ago the immediate ruin of the Parthenon has been a foregone conclusion in case another earthquake should occur before certain repairs shall have been completed. As I write, in the spring of 1897, the whole

WESTERN FACADE IS DISFIGURED

by an immense scaffolding, built in the strongest possible way from enormous beams that were brought all the way from America to serve Athens. This mighty scaffolding subserves a twofold purpose; primarily, it enables the Architects to replace certain rotten and broken architrave blocks with fresh blocks; but its important secondary purpose is to serve as a prop to the entire entablature, and prevent the collapse of the building in case of an earthquake. I gained admittance to this scaffolding on two occasions recently. I was thus enabled to examine at close quarters the frieze of the western end, a privilege for which many have longed in vain. It is a privilege, too, that will not be re-offered to anyone when the present scaffolding shall have been removed. From the base of the columns below any study of the frieze is out of the question—first, because, owing to the projecting epistyle, the bottom of the frieze cannot be seen, then because the whole frieze is distorted by a sharp perspective, and the lower-lying parts of the reliefs are hidden by the higher. The scaffolding affords, then, a unique opportunity for the study of certain chapters of Pheidias Art. But, not to dwell upon the frieze longer in this connection, I must say that I was dismayed at what I saw. The inside and interior stones of the entablature are rotten throughout. In many cases these rotten stones were

BROKEN BY THE RECENT EARTHQUAKES

into many pieces, though by the veriest miracle these pieces still cling together. As is well known, the epistyle consists of three huge blocks that stand on their narrow edges side by side and span the intercolumniations. Of these three blocks the outside ones alone are comparatively sound, while the interior and inside blocks are in a most ruinous condition. All of these inside blocks are to be replaced by new ones that are now lying on the ground below ready to be hoisted into position as soon as the mighty derrick that is to lift them on high shall have arrived from Europe. The thought of new epistyle blocks in the Parthenon is shocking to most souls, and yet it is a choice between that and immediate ruin. The new blocks will be coloured with oil and wax in order to rob them of their glaring whiteness and newness. But even more sorrowful is the fact that, though this ruin may be stayed for one or two centuries yet to come, still in the end the Parthenon must collapse unless virtually the whole entablature be replaced by new and sound stones. Am I asked for the reasons for this

RUINOUS CONDITION OF THE PARTHENON?

There are several reasons, several causes, some of which have been in effective operation for many years, though all unsuspected. We have been brought up to believe that the Parthenon was a perfect building erected by master builders, who employed only the best of material in its construction. It occasions a shock to discover that, though this is true in general, yet it is true with certain limiting qualifications, because of which the building

is now threatened with ruin. In point of fact the builders of the Parthenon employed first-class marble only on the outside of the building, only where the eye could see it. In the Pentelic marble there are veins of schist that disfigure and ruin many a fair block. Visitors will remember the many unfluted drums of columns that lie here and there around the temple. These are drums that were rejected of the builders—rejected because they were faulty in some way, often precisely because of this disastrous vein of schist. Indeed, one of the new epistyle blocks has just been rejected by the Committee of Architects because of its faulty character, which was discovered only after the block had been completely hewn, and was ready to be hoisted into position. No doubt that block will remain there for centuries to come, just as

THE REJECTED DRUMS OF COLUMNS

have lain for these decades of centuries. Now, of course, perfectly sound marble was employed in columns, both because they were completely visible and also because they had a great weight to carry. Sound marble was employed also in the outside stones of the entablature and of the cella walls, but the inside stones of the cella walls and the two inside stones of the epistyle were faulty from the start—faulty because of this vein of schist. As long as the building was covered by a roof the faulty character of these stones was of no importance whatever, and, as is well known, the Parthenon was always covered by a roof until its final disruption by the gunpowder explosion two centuries ago. The ruin that now threatens the portion left standing on that fatal occasion began from the moment of the explosion, and it has become more serious with each succeeding year. The roofless condition of the building has made it possible for the rain to penetrate into the schist veins of the faulty stones. At first but slight damage was done to these stones, but the frost of winter and the scorching sun of summer made the evil greater from year to year, until at last the scales fall from our eyes, and we discover that these stones are rotten throughout. The horror was revealed in its full extent by the earthquakes, when a number of these rotten blocks were shivered into many pieces. The fact that these splintered blocks did not fall is due to the soundness of the neighbouring blocks on the outside. But though the ultimate cause of the ruinous condition of the Parthenon was the employment in its construction of poor marble for interior and inside stones, which

TWO CENTURIES OF EXPOSURE

to rain, frost, and heat have made rotten, still other things have conspired with these—namely, fire and cannon balls before the disruption and earthquakes at all periods. The repairs that are to be undertaken now are not to be thoroughgoing, but, in fact, are only temporary makeshifts, though they will, perhaps, preserve the building for a couple of centuries. Many will remember that twenty-five years ago the lintels of the grand doorway of the western end of the Parthenon were discovered to be rotten. In 1872 a supporting arch was built beneath these huge stone lintels. This arch rests upon the slabs of the Byzantine doorway. The present moment offers a good opportunity for replacing the broken lintels with new stone beams. Were this done the arch and the ugly slabs of the Byzantine doorway could be removed, and then the mighty door would stand revealed in all its glory as it was conceived by Iktinos. It is known, too, that some of the stones used in this Byzantine patch-door are inscribed. This fact is one more reason for removing the patchwork, because, to judge by the beauty and great size of the stones, the assumption that they bear valuable inscriptions does not seem to be an empty one. It is to be hoped, too, that the

STAIRWAY TO THE TURKISH MINARET

will be taken down. It has been left there up to the present because it supports rotten architraves; but we demand a purified Parthenon, and surely a few more new epistyle blocks would not disfigure the building one

tithe as much as does this Turkish minaret. A conservative desire to remove only such of the old stones as are hopelessly rotten and broken prevails. This desire can be easily understood, and one's natural instinct is to share it; but, after all, sentiment should give place to common-sense, which clearly calls for repairs more radical than those which are to be made. And here comes in a fear for the frieze, the glorious frieze that fairly palpitates with the genius of Pheidias. When the final collapse of the Parthenon comes the frieze will be gone for ever. This remote danger, however, is not the only one that threatens the frieze; for there it stands exposed, like all the building, to slow but absolutely certain decay and ruin. In the recent earthquakes the head of one of the horsemen was broken off and dashed to pieces on the marble floor below. A similar fate is in store for the entire frieze, for the rotting process is already visible in the reliefs. In short, the reliefs ought to be removed now, so that they might be preserved in the museum for ages after the original entablature has ceased to exist. Dürpfeld did indeed propose to the committee that the frieze be removed to a safer and dryer place and be replaced by a marble copy. But conservatism carried the day. The thought, too, that

THE REMOVAL OF THE FRIEZE

to the museum would seem to justify the spoliation of the shrine by the deeply detested Lord Elgin had much to do with the stand taken by the majority of the committee. The frieze therefore will remain *in situ*, and will perish. There can be no doubt that the Parthenon would hold out for many centuries longer if it were covered by a roof. But it is thought by most men that a roof over the Parthenon would disfigure it absurdly. Of course it would; but then the roof would save the building, and sentiment would give the front seat to sound reasoning—which naturally would never, never do. But I must hasten to add that the care which the Greek Archaeological Society bestows upon all the ruins is worthy of unstinted praise. I first knew Greece twenty-two years ago. The Archaeological Society was making excavations then, to be sure, but the people, though much given to boasting of their ancestors, had little, almost no reverence for things upon which was laid the impress of the genius of those self-same ancestors. The ruins were abused and desecrated in a way that made the breast of the visitor from the West swell with rage and indignation. It is now eleven years since I bade, as I then thought, a final farewell to Greece. During the eleven years that have elapsed since then wonderful progress has been made by the Greeks in the matter of

REVERENT CARE FOR THE ANTIQUITIES.

I am not so sure that this reverence prevails to any great extent among the common people, but they are entitled to the benefit of the doubt. At any rate the management of the Archaeological Society deserves the thanks of all men for their efforts to make it impossible for the *plebs* to insult or mutilate the monuments. The ruins are now behind strong iron bars. For instance, a great iron fence protects the whole country between the Odeion of Herodes Attikos and the Theatre of Dionysos. Another fence protects the Dipylon-Kerameikos region; another one the Areiopagos and the sanctuary of the Eumenides, which, as I well remember, was once the rendezvous of gipsies and unsavoury tramps with their bears, and other unmentionable accessories. But this is changed now, thanks to the Archaeological Society. This change is seen and felt not only in outdoor matters, but the museums themselves are now arranged and managed in a most satisfactory manner. Something like order reigns, and scholars may study without vexation and loss of time. This, however, is not yet true of the epigraphical branch of the museum, for everything there is still in a chaotic condition. I must add, however, that the improvement brought about in this branch within the last decade is most noticeable and praiseworthy, and yet, if one is in search of a special inscription, days may be spent in the

perhaps fruitless endeavour to find it. A detailed catalogue is still a crying need.

DISARMING THE ALARMISTS.

Inquiries made among the best English archaeologists seem to show that the sensational statements regarding the dangers of the Parthenon collapsing are, says the Daily News of the 17th inst., greatly exaggerated. It is true that for some time there have been signs of decay in parts of the famous Athenian temple, certain blocks in the architraves having proved rotten, and others having slightly given way, owing to the shocks of earthquakes. But, as Mr. Penrose, the Architect at St. Paul's Cathedral, pointed out some years ago, the stones are so perfectly jointed that the errors occasioned by any small shifts arising from earthquakes, or from the violence of human agency, can be corrected most satisfactorily. An International Committee of Experts, with Mr. Penrose as the English representative, sat some time ago to consider what repairs were necessary. It decided that a partial restoration was wanted, but that no changes in form or in the kind of material used could be permitted. The Greek authorities, with true Oriental spirit, have shown great leisureliness in carrying out the repairs the committee suggested. First, it was decided that nothing must be done till after the Olympic games were finished. At the end of the games a great mass of scaffolding was erected, and this effort seemed, for the time, to exhaust the strength of the Greeks. Careful observers declare that, at the present rate of progress, it will be at least five years more before the work of restoration is completed. With energy all might be done, and the present unsightly scaffolding cleared away within twelve months. When restored there is every reason to hope that the Parthenon may stand for almost

AS MANY CENTURIES IN THE FUTURE

as it has done in the past. To speak of it as being "doomed" is nothing more than clap-trap. For the present dilatoriness in restoring it neither the depleted state of the Grecian Treasury nor the absorption of the Turko-Greek war are to blame. The work lies in the hands of the Greek Archaeological Society, a rich and powerful body, directed by M. Cavvadias. This society obtains a large income from lotteries, and undoubtedly has done something, within the last eleven or twelve years, to improve the national treatment of the old Hellenic memorials. Only a little time back the Greeks neglected their architectural treasures in a way almost incredible to more cultured nations. Even now there yet remains much to be done. While reasonable care is taken of the monuments around Athens, further inland they are shockingly treated. One of the most valuable, excavated a few years back at great cost, is now used for the lowest purposes. There have for some time been rumours of a movement among Western savants to bring such pressure to bear on M. Cavvadias and his assistants that they shall be compelled to exercise more energy and common-sense in the fulfilment of their trust.

According to the designs of Mr. J. W. Stevens, of New Bridge-street, a factory is in course of erection at Brook Green, Hammer-smith, for the Incandescent Electric Lamp Company.

A STAINED glass window has been put in the north side of the Grantham Parish Church. The four principal panels are devoted to figures of St. Ambrose, St. Jerome, St. Gregory, and St. Augustine; and at the foot of each Saint is depicted one of the chief incidents in his life.

It has been decided to seek a loan of £14,250 from the London County Council for the purpose of laying electric mains, for both public and private supply, in Camden, Archway, and Junction Roads, to the parish boundary; also on both sides of Highgate Hill to the parish boundary. The question of laying electric mains along Essex Road and in the residential district of Highbury is deferred for future consideration.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE British Archaeological Association commenced its annual congress at Conway on Thursday. On the opening day there was a reception by the Mayor and Corporation, and an inaugural address was delivered by the President, Lord Mostyn. A visit was paid to the ancient castle and the town walls, under the guidance of Mr. T. B. Farrington, C.E., the local honorary secretary, and the Parish Church, with Plas Mawr, and the remains of the Cistercian Abbey at Conway, were visited. On Friday, St. Asaph Cathedral was visited, and the famous caves of Rhuddlan Castle, the history of which was related by Mr. C. H. Compton, V.P. Saturday was taken up with a visit to Carnarvon Castle. The ancient collegiate Church of Clynog was also inspected and described by Mr. Charles Lynam, F.S.A. On Monday the Bangor and Beaumaris district was visited, the chief attractions being the Cathedral and the Castle. Yesterday was taken up with the Caerhun, Llanrwst, and Bettys-y-Coed district. To-day (Wednesday) the Llandudno, Colwyn, and Llanrhos district will come under notice, and Bodysgallen, the residence of Lady Augusta Mostyn, with Gloddaeth Hall, the seat of Lord Mostyn, will be inspected. Each evening papers are read at the Conway Guildhall.

DEGANWY CASTLE AND ITS HISTORY.

Lord Mostyn, the President, in his inaugural address, took for his subject the history and description of Degany and its ruins. The Association, his lordship observed, had been fortunate in selecting Conway as the meeting-place for the year. The town had rarely had the honour of receiving so many learned guests, and yet there were few places that represented such a variety of objects interesting to the antiquary. In the old castle and town walls they had, perhaps, the most perfect specimen of Saracenic Architecture to be found anywhere—at any rate, in Great Britain. At Conway they saw the mural defences of the town almost in the same condition in which they were left by the military engineers of Edward I. In almost every direction, too, they could find traces of ancient British fortifications and tumuli, and to those interested in crosses, inscribed stones, and other remains of that character, there were a variety of specimens to be found in the neighbouring county. Close by, at Caerhun, was a considerable Roman settlement, identified as the old Roman station of Canovium. At Carnarvon would be found the remains of another Roman station, Segontium. In the castles of Conway, Carnarvon, and Beaumaris they had three of the finest fortresses built by Edward I. At Degany they had the foundations of the first Norman castle, the Architectural features of which have been traced out by Mr. E. W. Cox, of Liverpool. Degany was his (Lord Mostyn's) own property, having been brought to his family, together with the Gloddaeth estate, about the time of Richard II. by his ancestress Margaret, the descendant of Iorwerth ap Madoc, who possessed it before the time of Edward I., probably after its seizure by Prince Llewellyn ap Griffith. He hoped at some time to carefully excavate the foundations and to carefully preserve the remains.

THE RUINS NOW REMAINING

were those of the castle built by Hugh Lupus, Earl of Chester, at the end of the eleventh century. This northern Palatine Earl was said to have appointed his kinsman Robert, Baron of Rhuddlan, as constable of the castle. He was killed near the Great Orme's Head by Griffith, King of Wales, in 1088, and his body was buried in the monastery of St. Werburg, Chester. In 1210 the castle, after being demolished by Llewellyn the Great, was entirely rebuilt by Randle Blundeville, Earl of Chester. In 1263 it was again totally demolished by Llewellyn ap Griffith. In 1282 King Edward I. came to Conway with a large army, when a peace was made with Llewellyn. War was, however, shortly again declared, and the King, who had made Rhuddlan his headquarters, advanced with

his army to Conway. Llewellyn was killed, and Wales annexed to England. Then it was that Edward completed the rebuilding of Conway Castle, and, having removed the Abbey from the town higher up into the Vale of Conway, surrounded the town with walls, making use, it was said, of the materials of the old Norman Castle at Degany for the purpose. His lordship then proceeded to deal with the remains of the old castle. Faint traces were to be found of the old city. The castle itself consisted of three parts. The great central courtyard lay between the hills and the defences of the smaller hill. The works on the great hill constituted a complete castle in themselves, and included a reservoir for the supply of water. It was probable that the entrenchments only existed with the Norman castle, and that the bulk of the masonry was later work. The lesser hill had for its central defence a bastion occupying the narrow summit. The plan of the castle, which Lord Mostyn described in detail, was, he said, somewhat intricate, and the erection of the various works had doubtless involved enormous labour. Nevertheless, it had many weak points as a place of defence, and the capture of the castle was evidently effected at its weakest points, the walls having been undermined and thrown down in huge masses. The rest of the buildings had been differently treated, and the tradition that the materials were taken to Conway was corroborated by the fact that the walls were not overthrown as was the gateway and the keep, and also by the fact that portions of the Conway town walls were built of similar materials to those to be found at Degany.

LONDON EYESORES.

IN an interesting article on this subject, the Daily Mail says, speaking especially with reference to chimney-stacks:—No stereotyped form is demanded of them. There is charm in variety. They may be twisted or straight; plump or slim; tall and gaunt; or small and podgy. But they must not be ugly. Unfortunately, however, there is no sanction appended to this law, and chimney-stacks can be as ugly as they well know how. To their ingenuity in this direction we bear willing testimony. They have immense power. It is theirs to break the skyline into shreds and tatters, or beautify it with modest pinnacles of elegant and fantastic shapes. They can complete the landscape or ruin it. They can distract attention from, or guide it imperceptibly to, a fine effect. Great, therefore, is the function of chimney-stacks! They have a double duty; to those who live in their house—for the houses may be said to belong to the chimney-stacks—their duty is to emit smoke and prevent the wind from blowing down them. To those outside they owe a higher duty—to fulfil their obligations to skylines and the scenery in general. How do the chimney-stacks of London do their duty? As a general rule they emit smoke only too voluminously; but as regards skylines they may be said to massacre them with fiendish glee. Nothing succeeds like success; and to-day you may see the

MOST HIDEOUS CHIMNEY-STACKS

sitting triumphant on the roofs of the best houses in town. From far along the Edgware Road and Cumberland Place they squint down with comfortable vulgarity on the Marble Arch. They crown Park Lane, squatting like harpies, of all sizes and shapes, on the abodes of our aristocracy. Everywhere they are triumphant. Look at them for a moment! They are made of zinc, and sometimes are straight and cylindrical; sometimes they bend their necks in ungraceful imitation of the swans; sometimes they seem to be peering over the edge of the roof with crooked knees and sloping backs, or like hooded snakes regard with impassive malignity the distant horizon. They are ugliest, however, when a dozen or so of them combine to present the appearance of an unfinished organ for the production of smoke instead of sound. You could almost laugh to look at them; they are an object-

lesson on the benefits of combination. The fatuousness of the thing, too, cannot but strike you; for a bunch of them very nearly destroys a fine view of the Houses of Parliament from Piccadilly Circus. The view is in no way obstructed, but the eye is impeded and distracted by them. The curious thing about nearly all these objectionable chimney-stacks is that they are makeshifts, not, designed in the original plan of the building, but

AFTERWARDS FOUND NECESSARY,

and then erected at as little cost as possible, but with limitless opportunities of continuing the great crusade against beautiful skylines. The Constitutional Club in Piccadilly affords a good example of what may be done unintentionally to destroy one aspect of a handsome building when additions are found necessary, if such an excuse can be offered in this case. As you approach the Constitutional Club from Hyde Park Corner you get the view shown in the sketch herewith. So much of the building as may be properly included in the façade is well designed, and in keeping with the whole effect. But there the artistic efforts of the Architect seem to have stopped short, with the result that side by side you have a well designed and effective bit of stone masonry and a section of brick wall surmounted by diminutive chimney-stacks that might at an earlier date have formed part of the wall surrounding a villa in Suburbia. Not that there is anything necessarily inartistic in the garden wall of a villa in Suburbia, but its proper place is certainly not on a building overlooking the Green Park. The juxtaposition of carved stone and a parallelogram of dingy yellow bricks is so ludicrous as to be intolerable. You might as well be presented at one glance with a view of the kitchen and the dining room, in the hope that they would harmonise well because of the community of interests they represent. As a final example of our civic carelessness as to skylines, take that very temple of Art itself,

THE NATIONAL GALLERY.

Here, if anywhere, you would imagine that the most self-opinionated of critics could find nothing to grumble at. But, alas! it is not so. The carping critic has good reason to complain of the manner in which the skyline above one of the finest sites in Europe has been botched. The original design is obvious enough. There is nothing very magnificent about it. A rather small dome, flanked by smaller domes, is unoriginal enough to be familiar, but it makes a simple and effective skyline. But what are those that crowd on the housetops of Britannia's temple of Art? A little way back from the central dome you may behold a squat sexagonal structure with a good deal of glass about it, that you could imagine to have been imported thither from some East End theatre of varieties. Something got anywhere, and dumped down anyhow. The diameter of it is bigger than that of the dome, which is therefore made to look less than it really is, which it really can't afford to be. Behind the sexagonal affair—we are at a loss to know what to call it—rises the tower of the new National Portrait Gallery. You cannot help asking what it is doing there. Again, on the far side of each of the smaller domes, you have at the one end a dirty little crook-headed zinc chimney-stack, and at the other something that looks like the inverted pedestal of a statue. Probably it is a ventilator. Everything is out of relation to everything else, and the whole effect is enough to make the original Architect turn in his coffin. But, in conclusion, we may turn from skylines, and glance at something that is on a level with our eyes. The Palace Theatre of Varieties was intended to be the English Opera House, and the Architect did his best to make it worthy of its original purpose. Not only is the whole effect very fine, but every detail has been carefully imagined, and carved out in stone. But, in spite of what it ought to be, a trifling little porch has been erected, which conceals a considerable portion of the stonework of the building, and disturbs the whole effect.

Professional Items.

ABERDEEN.—The Plans Committee of the Town Council has had before it plans of the following buildings, viz.:—Addition at rear of premises on the north side of St. Clement Street, for Messrs. G. and W. Davidson, per Messrs. Brown and Watt, Architects. Two dwelling-houses on the north side of Broomhill Road, for Mr. W. Murray, per Messrs. Brown and Watt, Architects. Addition at rear of northmost of four dwelling-houses on the west side of Ferryhill Road (approved on 20th May last), for Mr. A. Melville, C.E. Workshop at South Esplanade, for Mr. John Rasmussen, per Mr. William Malcolm. The Committee had also before it plan of alterations and additions in connection with property on the east side of Leslie Terrace at its junction with Stafford Street, for Mr. Alexander Thomson, builder. The Committee approved also of the following buildings, viz.:—Six dwelling-houses on the north side of Hamilton Place, for Mr. Robert Smith, per Messrs. Brown and Watt, Architects. Six dwelling-houses on the south side of Hamilton Place, for Mr. John Henderson. Dwelling-house on the south side of Wood Street at its junction with Baxter Street, for Mr. Robert Rainnie, per Messrs. Harper and Sutherland, Architects. Two dwelling-houses on the north side of Osborne Place, for Mr. William Buchan, builder. Four dwelling-houses and shops at the junction of Rosemount Viaduct and Skene Terrace, for the Aberdeen Town and County Property Company, Limited, per Messrs. Brown and Watt, Architects.

The demolition of the properties at the extreme north end of Union Terrace and North Silver Street, begun the other day, is the outward indication of a very considerable improvement that is about to be effected in that quarter. The properties in question were acquired for a new limited liability company, with the view of having erected at this point a new club, to be run on popular lines in connection with the Unionist cause in Aberdeen. At the Town Council meeting reports were submitted relative to the sanctioning of the elevations of the proposed buildings. These new buildings will not only form a convenient and handsome location for Unionists in the city and county, but will go a long way to complete the architectural amenities in a locality which has come to be regarded as standing above all others in Aberdeen in respect of the distinguished character of its buildings. To make way for these buildings, the house at the north end of Union Terrace is being removed, and the three similar houses in North Silver Street, so that the Union Club buildings will have a frontage to Union Terrace, Skene Terrace, and North Silver Street. The frontage to Union Terrace and Skene Terrace will be of a circular form, the buildings sweeping round the corner and giving a complete finish at that end to the buildings of Union Terrace. The block will consist of two parts, a main block—extending 100ft. from the adjoining house in Union Terrace—and, secondly, a hall block fronting Skene Terrace of a slightly less ornate appearance than the main building. The premises are in the Renaissance style of architecture, and are to be built of white Kemnay granite, finely dressed, in keeping with the numerous other public buildings which have been erected in that vicinity. The building consists of three stories, the chief architectural feature being the French Pavilion design of the centre portion. There are two entrances. The main entrance to the club portion of the buildings is at the south end, in Union Terrace; and for the hall portion of the buildings the entrance is at the other end of the main block. Between these doorways the ground floor of the main block is to be utilised as three large shops, with an amplitude of space for the display of goods, divided by pilasters of smooth white granite. The internal arrangements are carefully calculated to meet the requirements of a club such as is intended to occupy this main block. From the vestibule to which the club doorway gives

entrance a wide staircase rises to the first floor. Here the front portion is divided into a smoking-room, 24ft. by 30ft.; reading-room, 20ft. by 34ft.; and refreshment-room, 26ft. by 23ft.—all lighted from the front by three windows each. At this level also, towards the back, and entered from the separate doorway, will be the buffet, supper room, and kindred accommodation available in connection with the adjoining hall. On the second floor of the main block is a large recreation room, a committee room, and caretaker's quarters, which are continued in the higher part of the pavilion. At the level of the second floor, and above the adjoining hall, is to be situated the billiard room. The hall will accommodate an audience of about 600. The cost of the new buildings—of which the Architect is Mr. A. H. L. Mackinnon, Union Street—will be between £9000 and £10,000.

ARKLOW.—The new parochial house in Arklow was designed by Mr. William Hague, Architect, and was erected from his plans and under his supervision by Mr. Robt. O'Connor. It is built of rubble masonry, and the walls are cemented interiorly and exteriorly. The internal appointments are good, and the rooms are handsomely furnished. The building was commenced early in 1895, and was completed within the same year. It was erected at a cost of £1750.

ATTERCLIFFE.—A company is being floated to build a music hall. The site secured is on the busy main thoroughfare, only a few doors from the Queen's Head Hotel. The Architects are Mr. G. D. Martin and Mr. A. Blomfield Jackson. The building, which will be begun as soon as the Highways Committee has sanctioned the plans, will have a holding capacity of over 2000 in the pit and circle, and arrangements are to be made for adding a gallery later if it is needed.

BARRY.—The improvements at Barry Station, which form part of an important scheme of reconstruction on the Dundee and Arbroath Joint Railway system, has just been completed. Barry Station now presents a very different appearance from that which it has worn for so many years. On the spacious new island platform there has been erected a large range of offices and waiting-rooms. The structure is of polished pitch pine, with overhanging verandahs, supported upon massive metal brackets. At the west end accommodation is provided for the offices, and adjoining these are commodious general and ladies' waiting-rooms. Sanitary conveniences of the most modern type have been provided. The small wooden house which formerly did duty as a waiting-room on the south platform now occupies a position on the north side. The lighting of the platforms has been considerably improved, and a number of other minor improvements have been carried out. The contractors for the work were Messrs. D. P. How and Son, Dundee.

BRADFORD.—A faculty will shortly be applied for in the Consistory Court of Ripon authorising the removal of the north and south galleries, the erection of new clergy and choir vestries and north and south transepts, and other alterations required in the Bradford Parish Church. The citation sets forth in minute detail the various proposed new works and restoration of some of the older portions, and is accompanied by plans prepared by Messrs. Healey, the Architects. It concludes by affirming "that no carved work in wood or stone, no stained-glass window or ornamental work in metal or other material, and no ancient window, doorway, or other specimen of ancient architecture would be destroyed or interfered with in carrying out the works." The estimated cost is stated to be about £4000, and the works are to be completed within twelve months from the time of the faculty being obtained.

CARDIFF.—Nearly every other man has a scheme for improving Cardiff. Some are plausible, many are not; a few are practicable. Mr. P. Williams, of Newport Road, has elabo

rated a scheme of a threefold character. It provides for an improved route from Bute Street to the Taff Vale Railway Station, the widening of Bute Street, from canal junction to the Great Western Railway bridge, with a relief street from Bute Street to Custom House Street, and the widening of Pembroke Terrace. The present route from the Great Western Railway Station and the Bute Street district to the Taff Vale Railway Station is very circuitous, and it is proposed that as there is some probability of a lot of property on the western side of Bute Street being acquired at moderate rates, it should be bought up and thrown into the street. Mr. Williams suggests that the corner between Hope Street and Crichton Street should be taken off, which would make a convenient approach from Custom House Street, and thus provide a relief street, and at the same time enable people coming from the western direction to evade the dip under the Great Western Railway bridge over Bute Street. He next proposes that the small shops at the corner between Bute Street and Bute Terrace should be set back, so as to give greater facility for dealing with a congested spot. Mr. Williams proposes that the feeder from the end of Bute Terrace to Guildford Street Bridge should be covered over, and an entirely new road provided. This would afford a short cut through to the Taff Vale Railway Station. Combined with this part of the scheme, Mr. Williams proceeds to deal with three awkward corners—one at the junction of Guildford Street and Nelson Terrace (or Bridge Street), one between Guildford Crescent and Guildford Street, and one at the junction of Guildford Street and Lower Station Terrace. To do this he proposes that the feeder should be covered for a short distance on the Pembroke Terrace side of the Guildford Street Bridge, which will afford an open space, and enable people to avoid the opposite corner, whilst he would take a slice off from the corner of Edward Street into Station Terrace, which would provide a fine open approach to the station yard. The final portion of the scheme is the proposal to widen Pembroke Terrace by setting back the wall to the edge of the water at the feeder. If this were carried out it would give a roadway of over 40ft. wide, offering a convenient outlet for traffic into Queen Street.

CARLTON.—The foundation stones of a new Methodist Free Church were laid at Carlton on Thursday. Plans and estimates were prepared by Messrs. R. E. and E. R. Sutton, Architects, of Nottingham, and the contract is in the hands of Mr. J. Lewin. The cost will be £2600. The new building has an imposing frontage to the main thoroughfare. The front elevation will be of a late Gothic character, built of pressed red bricks, with Derbyshire stone dressings, and will contain a fine Gothic window of Cathedral tinted glass, with four smaller windows of a similar character.

CLECKHEATON.—The roofing of the new Liberal Club has just been finished, and the structure is rapidly approaching completion. Both externally and in its internal arrangements the new building is a satisfactory achievement, and, from an architectural view, corresponds most favourably with the many other public buildings in Cleckheaton and Spen Valley.

COLCHESTER.—The design for the new Town Hall at Colchester, to which the first premium has been awarded, is that by Mr. J. Belcher. There were three prizes offered in connection with the competition, the other premiated designs being those submitted by Messrs. Lanchester, Stewart, and Rickards and Mr. Mountford respectively. The competition will form the subject of an illustrated article in an early issue of the BUILDERS' JOURNAL.

DOUGLAS.—The Douglas Town Council has approved of the plans of the scheme of Messrs. Stevenson and Burstall, of London, for the reconstruction of the Douglas system at a cost approaching £50,000. The tender of the Stanton Ironworks Company Limited, Nottingham, for the supply of iron pipes in con-

nection with the scheme for £2481 was accepted.

EDINBURGH.—The work of relaying the roadway in the centre of North Bridge Street to suit the gradient of the new North Bridge has now been completed. The new roadway, which is really of a temporary character, has to be raised about four feet at its lowest end, where it meets the southern end of the bridge, and in order to accomplish this, and leave the pavement on each side untouched, the edges were constructed of brickwork, on which the gradient was carried out southward till it met the old street level at the Tron Church. The centre of the street will now accordingly present one gradient from the Register House to the Tron Church. Along with the roadway there had also to be laid, of course, a new track for the tramcars.

The erection at Edinburgh Castle of the new military hospital, for which £18,000 was recently voted by Parliament, is now being rapidly proceeded with. The site of the new hospital is at the north-west corner of the Castle rock, overlooking Princess Street and Castle Terrace. The buildings are to be treated in the Scottish baronial style of Architecture, and will harmonise with the older portions of the castle—more than can be said of some of the hideous modern erections that disfigure the ancient stronghold. The buildings will, it is expected, be ready for occupation in about a year.

ERWOOD.—The restored Church of Llandilo Groban, near Erwood, was re-opened a short time ago. During the past twelve months the building has been in the hands of the workmen, and under the direction of the Architect, Mr. E. Collier, of Carmarthen, the chancel and nave have been faithfully restored at an expense of about £600, of which the Ecclesiastical Commissioners contributed £200. The tower has yet to be restored.

FORDHAM.—The foundation stone of the hall and institute which are being built by public subscription to commemorate the Jubilee was laid on Thursday by Mr. Alexander Peckover, Lord-Lieutenant of Cambs. The building, which is being erected by Mr. H. Boon, of Fordham, from designs by Messrs. Gordon, Lowther, and Gunton, of Finsbury House, Blomfield Street, London, will contain a hall 56ft. by 28ft., a reading-room, and a room for games, each 18ft. by 14ft. 6in., and rooms for the caretaker, and has a well-designed exterior.

HUDDERSFIELD.—No fewer than thirty designs have been received by the Huddersfield Jubilee Castle Hill Tower Committee. After having been adjudicated upon, they will be placed on public exhibition in the rooms in Byram Street shortly to be prepared for the purposes of the Free Library.

LEEDS.—Various street improvements were considered at a meeting of the Streets and Sewage Committee of the Leeds Corporation held on the 18th inst. These included improvements in Mill Street, Meadow Lane, Camp Road, Woodhouse Lane, Chapeltown, and the junction of Woodhouse Lane with Cobourg Street. It was resolved to proceed with the work at those places. The Committee decided last week to accept a contract for about one thousand tons of coke breeze for the purpose of carrying out at Knostrop Sewage Works Mr. Dibdin's system of sewage purification. A deputation was appointed to meet the West Riding Rivers Board in October next, to consider the question of sewage disposal in Leeds.

LOWESTOFT.—The foundation stone of a new children's hospital at Lowestoft was laid recently. The new structure is situated on a piece of land immediately to the north of the existing hospital, with which it will be connected with a covered corridor. The building will consist of one ward for six beds, and the plans show that special care has been taken with the ventilation and heating. The lavatories and bath-rooms are very complete and adequate. There will also be in connec-

tion with the institution a ward kitchen and an isolation ward for two beds, with its own bath-room and lavatories. The children's ward is 26ft. by 24ft., and the isolation ward 20ft. by 17ft. The building has been designed by Mr. W. J. Roberts, Architect, of Lowestoft, and will be erected by Mr. Bedwell, builder.

NEWCASTLE.—At a meeting of the Town Improvement Committee of Newcastle Corporation, the City Engineer (Mr. Laws) presented a report as to making wood pavements, and also the use of granite sets in several of the principal streets of the city. It is proposed to pave Grainger Street, Neville Street to Derwent Place; Northumberland Street, from St. Mary's Place to Pilgrim Street, with wooden blocks. Blackett Street is already being paved with that material. It is also proposed that from the Grand Hotel to Newgate Street, and also along Clayton Street, granite sets be laid. The probable cost of the paving of the streets with wood is estimated at £18,500; and for the granite set pavement, £7500, or a total of £26,000.

PADDINGTON.—Mr. John Aird, M.P., laid the foundation stone of the new Metropolitan Theatre of Varieties, Edgware Road, a week ago. The new building will stand on the site of the old house, and when completed will be equal to any of the music-halls of the Metropolis. A part of the original structure has been preserved, but the auditorium will be completely reconstructed, and the seating capacity of the house will be increased to 3000. The stage will be enlarged, and new dressing-rooms provided, while every attention is being paid to exits and precautions against fire. An entirely new frontage is to be erected, additional premises having been purchased on the right of the former house. The work of reconstruction was commenced three months ago, and it is hoped that the theatre will be completed and ready for opening by the end of November.

PAISLEY.—At Paisley Burgh Dean of Guild Court on Thursday, Mr. Charles Buchanan, builder, Glasgow, was authorised to erect fourteen four-story tenements of dwelling-houses and shops in Caledonia and Hunter Streets. Mr. William Terrel obtained consent for a three-story tenement at Meikleriggs; and there were also passed plans for the erection of a new factory and warehouse, 73ft. long, and four stories in height, and several smaller additions at the works of the Paisley Co-operative Manufacturing Society (Limited) at Colinslee.

QUORN.—Memorial stones were laid on the 18th inst. of a new Baptist Sunday School at Quorn. The existing chapel is situated in the Woodhouse Road, but has hitherto been shut in by cottages fronting it. The cottages were purchased by the chapel authorities, and the enlargement of the school accommodation decided upon. Mr. T. North is the Architect of the new building, the contract for the work having been let to Mr. Horspool, of Quorn, for the sum of £420. There will be accommodation for 100 children. The lower part of the new structure is to be of granite stone, the remainder above of red brick, covered at the roof with Swithland slates. Internally, the woodwork will be of pitch pine, and the heating will be by hot water.

SHIPLEY.—A special meeting of the Shipley District Council was held last week for the purpose of opening the tenders for the new sewerage works. The Shipley scheme comprises a trunk sewer from the outfall works at New Market Farm, along the bank of the river Aire, and thence up the north and west boundary of Shipley to Stoney Ridge; and a trunk sewer from the outfall works by Bradford Beck to the Shipley boundary at Frizinghall, this sewer being intended to drain both sides of the valley. There were seven tenders, and that of Mr. William Foster, of Bingley, which was under £14,000, was accepted. For the works comprised in the Windhill main sewers there were fourteen tenders, and that of Messrs. Rhodes Bros., of Shipley, which

was under £5000, was accepted. The engineers engaged are Mr. M. Paterson (for Shipley) and Messrs. W. B. Woodhead and Son (for Windhill). The estimated cost of the entire scheme (including the defecation works) is £55,000.

TIBSHELF.—It has been decided to erect a new Methodist chapel at Tibshelf. The site of the proposed building is in Addison Street, and when completed will provide accommodation for 600 persons. The Architect is Mr. A. E. Eyre, of Conder. The memorial stones were laid a few days ago.

WIGAN.—The reredos in the Parish Church has been altered and adorned by Messrs. James Powell and Son, of London, who are doing the mosaic work in St. Paul's Cathedral. The stone work is unaltered, except in the centre, where the two panels over the altar have been thrown into one and raised, so as to allow room for the retable. The back of the retable is adorned with medallions, containing the instruments of the Passion, and above is the Heraldation of the Lamb, the Church being represented by five New Testament Saints, and five representatives of the English Church. On either side of the altar the niches have been filled with statues in stone of St. Michael and St. Gabriel. The four long panels, two on each side, show figures of David, Isaiah, Zechariah, and St. Paul. Each of these holds a scroll containing an extract from his writings, speaking of the priesthood of Christ. The heads of the canopy are adorned with gilding. New altar rails in iron from the workshop of the same firm have been put in the places of the old heavy ones, and a handsome oak credence table has been placed in the sanctuary. The total expense is about £380.

ONE of the largest strikes ever experienced in the Black Country brick trade has commenced at Oldbury. About 800 brickworkers ceased work for an advance in wages of 20 per cent. The men complain that the employers have refused to concede any advance whatever, and have declined to meet the men or their representatives in conference.

In his native town of Shrewsbury, and in front of the school which for nine years he attended, a statue has been unveiled in memory of Charles Darwin. It is the work of Mr. Horace Montford, and represents the naturalist seated in a massive chair, holding some MS., while at the foot are a number of volumes representing his finished works. The statue, which is of bronze, is the gift of the Shropshire Horticultural Society.

It is announced from Paris that the Academie des Beaux Arts has decided not to award the Prix de Rome for painting this year, as none of the competitors have shown sufficient merit to justify any selection. Two second prizes have been given, and a special third prize has also been provided as a consolation; but the withholding of the chief award has caused something like consternation among the younger French artists.

A band of sixty workmen, employed by Messrs. Harrison and Spooner, College Street, are now engaged in repainting and re-decorating Blackfriars Bridge. The work will take three months. The painters are giving the old bridge a new coat of purple oxide, the decorated parts being "mock bronzed," and the buttresses washed down. The last time the bridge was repainted was in 1888, and previous to that in 1876, the work being done by the firm now employed.

The East London Art Exhibition, promoted by Mr. A. F. Hills, will close at the end of the month, and will be followed on October 2 by a Diamond Jubilee Trades and Inventions Exhibition. Special facilities are offered for the exhibition of inventions and novelties (patented during the last sixty years) in building, architecture, joinery, &c., ship-building and engineering, electrical and other lighting, textile and clothing arts, furniture and decoration, printing, publishing, book-binding, &c.

Correspondence.

CARDIFF NEW TOWN HALL AND LAW COURTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—As will be seen from your advertising columns, Cardiff contemplates the erection of a town hall and law courts on a scale befitting its importance as a centre of wealth and population.

For this purpose the Corporation have lately purchased from the Marquis of Bute a finely timbered park of some sixty acres. This magnificent site is bounded on its south by the Feeder, an artificial but beautiful river, by which the waters of the Taff are carried to the docks. There is a singular charm about this rapidly-flowing stream, here entirely over-arched by trees, with the lawn and garden around the ruins of the Grey Friars monastery on the one side and the park aforesaid on the other.

The spot appropriated to the building in question is within a stone's throw of the Feeder, and not three minutes' walk from the centre of the life of Cardiff; yet scarcely a trace of the near neighbourhood of a great town is visible from it. This is partly accounted for by the fact that the grounds of Cardiff Castle bound the park to the west, with only a road and canal intervening. It struck the writer on visiting Cardiff that the Corporation had secured an unrivalled site for their future municipal buildings.

It is to be hoped, therefore, that something worthy of the opportunity may result from the competition which has been determined upon for the buildings in question. The time allotted for the work is short, but, from the circumstances of the case, cannot be extended. The conditions are, I think, more favourable than usual.—I am, Sir, yours obediently,

A. WATERHOUSE.

August 19th, 1897.

THE ARCHITECTURAL ASSOCIATION.

SYLLABUS FOR NEXT SESSION.

THE curriculum for the session 1897-98 has already been issued, and may be taken as heralding one of the busiest sessions in the history of the Association. The Architectural Association is essentially an educational body, and the sphere of its activity, and therefore the extent of its utility, is yearly increasing, to the gratification, not only of the members, but of many well-known Architects who have interested themselves in the institution since its inception. There are many known names in the list of lecturers and instructors, and the classes, &c., promise to prove equally, if not more fruitful than in previous sessions, the subjects embracing a collection both wide and comprehensive. The ordinary meetings of the Association will take place on alternate Fridays as heretofore, and the topics on which papers will be delivered are as follows:—"Practical Lessons from the Paris Fire Bazaar," Mr. Edwin O. Sachs; "Classification of Trades," Mr. S. Flint Clarkson; "Some New Materials for Use in Building," Mr. H. D. Searles-Wood; "The Planning of High Schools and Endowed Schools for Girls," Mr. J. Osborne Smith; "House Painting," Mr. L. A. Shuffrey; "Composition in Regard to Public Buildings," Mr. F. T. Baggallay; "Hampton Court Palace," Mr. John Belcher; "Leadwork: Plain and Decorative," Mr. F. W. Troup; "Scottish Ecclesiastical Architecture in the Fourteenth and Fifteenth Centuries," Mr. Hippolyte J. Blanc; "Constructional Steelwork," Mr. T. C. Cunningham; "The Morality and Economy of Competitions," Mr. H. B. Creswell; "Interior Lighting," Mr. W. Eckstein; "Electric Lighting as Applied to Architecture," Mr. T. Ekin; "Foundations as Applied to London Buildings and Riverside Foundations," Mr. A. T. Walmisley.

SOCIETY MEETINGS.

Cambrian Archæological Society.—St. David's Cathedral, which was visited a few days ago by the Cambrian Archæological Society, is almost as inaccessible at the present day as it was seven centuries ago. The only halt en route to the Cathedral was at Brawdy, where, in addition to the Church, which is an interesting specimen of the small Pembrokeshire Churches, are three inscribed stones of considerable importance. At St. David's the visitors were met by the Rev. Chancellor Davey, who, after the company were marshalled in the Cathedral nave, read a short description of the edifice. His remarks were frequently supplemented by Mr. Stephen W. Williams, who pointed out the resemblance between the details of the very late Norman transitional work and those of Strata Florida Abbey. He had come across practically identical work in the west end of Llandaff Cathedral, for the drawings of which he was indebted to Mr. Seddon, of St. David's, and he had no doubt that a band of Welsh workmen belonging to the same Guild had worked in the construction of the three greatest ecclesiastical edifices of mediæval Wales, and had imparted to the details of each a touch of artistic feeling which was essentially Celtic. Several members, accompanied by Dean Howell, went as far as the Chapel of St. Non, the supposed birthplace of St. David. Nothing is now left of the chapel but the four walls. To the north-east is the Saints' Well, covered with a stone roof.

Yorkshire Master Builders.—A meeting was held recently at Huddersfield of a number of master builders from most of the Yorkshire towns, particularly the districts of Holme, Colne, and Spen Valley, to consider the advisability of forming a federation for Yorkshire. The chair was occupied by a local master builder, and the meeting was well attended. Representatives were present from the Lancashire Federation of Master Builders, who explained the objects and working of that society, and the success which it had attained in Lancashire. It was mentioned that since the federation had been formed there had been fewer strikes and a mutual good feeling had been engendered between the masters and operatives. The meeting passed a resolution affirming the general desirability of establishing such a federation, and then steps were taken to form one, and the preliminary rules, on the basis of the Lancashire federation, were considered and adopted. Broadly, the objects of the Federation are to enable contractors to make more satisfactory terms with Architects and engineers with respect to agreements for the carrying out of contracts; also the better conduct of the working rules with the operatives. It is part of the general movement which is taking place in the North of England. The next meeting will be held at Leeds on September 15th.

Mr. Woodrow, of Chancery Lane, is the Architect for the rebuilding of Collins's Music Hall at Islington Green.

New warehouses are now being erected in Old Barge House Street, S.E., for the Civil Service Supply Association, at a cost of over £25,000.

A TERRIBLE accident recently occurred to a number of builders at Boxenden, near Accrington. Some scaffolding, bearing five men engaged in the erection of extensive chemical works for the Nicol Chemical Company, fell from the third story, and the workmen were precipitated a distance of 50ft. Two of them were killed instantaneously, and two others severely injured.

A WOODEN bridge which carries the Great Eastern Railway across the Waveney, near Somerleyton, Suffolk, took fire a day or two ago. The bridge appears to have been ignited from the funnel of a small steam launch, as flames were observed proceeding from the woodwork soon after the launch had passed beneath it. About twenty feet of the woodwork was destroyed before the fire could be subdued.

Trade and Craft.

THE IRISH TUNNEL SCHEME.

The Council of the Belfast Chamber of Commerce has adopted the report of the deputation which waited on Mr. Ritchie, President of the Board of Trade, in reference to the tunnel between Wigtownshire and County Antrim. The report states: "The deputation think it necessary to assure the Council that they adhered strictly to the instructions they had received, and did not suggest directly or indirectly that the Government should commit themselves to the construction or financing of the tunnel at all. Your deputation referred to the strong engineering evidence before them, simply to justify and call for inquiry and examination by trial borings and soundings, and the preliminary inquiry which we considered absolutely essential to the formation of anything like a sound opinion on the subject. The estimate for this is £15,000. They beg to say that nothing that fell from the President of the Board of Trade seems to them sufficient to justify any change in the view taken up by the Council. We are not at present sufficiently well informed to say that Mr. Ritchie may possibly be right in some of his conclusions, but he may be wrong—as far, wrong as Lord Palmerston was in considering the Suez Canal impossible, or Lord Derby in declaring that no ship could cross the Atlantic propelled by steam alone. The deputation also notice with regret that the figures used by Mr. Ritchie in his argument are extremely inaccurate, and they think further that the suggestion that the Government might be deterred from such an enquiry by the fear of opposition of interested parties is a very singular and unusual objection. On the whole your deputation is of opinion that the subject remains before us precisely as it was. Nothing has occurred to alter the position in the slightest degree."

MANCHESTER TRAMWAYS.

At a meeting of the Special Committee of the Manchester Corporation as to the working of the tramways, it was resolved to recommend that when any change takes place in the motive power used on the tramways in the city, the new motive power adopted shall be electricity, to be supplied from the electricity works of the Corporation. This resolution is intended to take effect whether the working of the tramways remains as at present in the hands of a Company or is by-and-bye taken over by the Corporation. The resolution recorded will be of value to the Electricity Committee as to future demands which it will be called on to meet.

TENDERS FROM FRANCE.

The Directors of the Record Mill Company, of Ashton-in-Makerfield, recently asked for tenders for engines and boilers for the new spinning mill they are building. In consequence of the very high prices quoted by the various firms who have tendered, the Directors have, it is stated, decided to obtain tenders from French makers before placing their contracts. The explanation given for the high rates quoted is the uncertainty of execution and probably enhanced cost which the various firms had to keep in view consequent on the trouble in the engineering trade.

OPEN SPACES: AN IMPORTANT DECISION.

Mr. George M'Pherson, Pomarium Street, Perth, recently applied for permission at the Dean of Guild Court to erect dwelling-houses and offices on vacant ground behind the tenement at 80, Pomarium Street. The Burgh Surveyor and Mr. William Neilson, an adjoining proprietor, lodged objections to the permission being granted on various grounds, the most important of which was that the rooms at the back of the buildings were not provided with the necessary light or air space required by Clause 170 of the Burgh (Scotland) Act, 1892. The contention of the objectors was that this clause required any space from which any of the rooms were lighted and

ventilated to be equal to at least three-fourths of the area of the intended building. The case was debated before Bailie Wright, who repelled the objections and granted the petitioner his lining.

A BUILDING DISPUTE.

At the Pontypridd County Court on Thursday (before His Honour Judge Gwilym Williams), Charles Telford Evans, Architect, Cardiff, sought to recover £42 from W. Jenkins, builder and contractor, Cilfynydd, in respect of building stone supplied. There was also a counter claim for £9 15s. 3d. paid into Court by defendant. The action was a remitted one, and Mr. Williams explained that the only point in dispute was as to whether defendant had agreed to pay 2s. or 2s. 6d. per load. Plaintiff stated that he supplied the stone from his quarry at Llanhilleth, and had made a contract with the defendant and his manager, Mr. James, that he was to receive 2s. 6d. per load.—Defendant and Mr. James were called, and swore that plaintiff had agreed to supply the stone at 2s. per load.—Henry Ellis, a quarryman, was called, and said he would have been prepared to supply the stone at that price.—Judgment was given for Mr. Jenkins in respect of the claim and counter claim.

DOUBLE DOVE-TAIL FIXING BRICK.

An invention of no little ingenuity and practical utility to builders has just been placed upon the market by the patentee, Mr. W. G. Spratly, of Hammersmith. The double dove-tail fixing brick seems to have a distinct mission to fulfil, and to do that effectually. It has been designed as a fireproof substitute for the ordinary wood fixing-block or plug, and consists of a framework of iron divided into two compartments, the rear space of which may be filled



in with any fireproof material, while the front portion holds a wooden block to which can be secured any desired article either by nails or screws. The contrivance is suitable for suspending telegraph wires in tunnels, and also for firmly securing to walls such objects as heavy advertising boards. All that is necessary is to take out an ordinary brick and replace it with the new fixing brick. But perhaps the great value of the invention consists in its fireproof qualities when inserted into chimney breasts for holding the skirting boards; the fireproof cement protects the fixing block and all adjoining woodwork from the fire of an overheated chimney. When it is remembered that, with a view to the diminution of the risk of fire, the Building Act now requires that 12in. of brickwork shall be placed between the flue and any wood work, such as a skirting, it must be conceded that Mr. Spratly's patent possesses advantages not met with elsewhere. The dove-tail fixing brick complies with the Act in this particular, and its use ought certainly to obviate the necessity of such an increased thickness of brickwork. The invention, we are told, has been designed to render 4½in. work fireproof, but if we take the chimney breast at 9in. in thickness, the saving of 4½in. represents what may be an average of twenty cubic feet for each fireplace. Here is an appreciable saving in expenditure; but the gain is also considerable in cottage and villa property, where breathing space is valuable. It is more than probable that the building trades will look with favour upon this invention, particularly if its use is calculated to so alter the Building Act as to

effect a reduction in the prime cost of building, as well as an enlargement of the floor area. We venture to predict considerable success for Mr. Spratly's invention.

WOOD PAVING IN LONDON.

The Vestry of Paddington has borrowed £13,000 from the London County Council for the purpose of extending wood pavements in the parish. Already about eight miles of the streets of Paddington are paved with wood, but mostly soft wood. For reasons of durability, cleanliness, and sanitation, the Vestry has now abandoned the use of soft deal in favour of hard wood, and has accepted a tender for the supply of 850,000 West Australian hardwood blocks at £10 17s. 6d. per 1000 blocks.

A GATESHEAD BUILDING DISPUTE.

At the Gateshead County Court, before his Honour Judge Greenwell, an action was brought by Mark Stephenson, builder and contractor, Gateshead, to recover from Jane Ann Turnbull the sum of £25 16s., balance of an account for work done and material supplied. The work done by the plaintiff was the conversion of a dwelling house in Brunswick Street into a shop, such work involving the putting in of a new front, the excavating of a garden, and the laying down of a cement yard. £90 had been paid by the defendant, and this action was for the balance. Plaintiff said he also prepared two sets of plans for the defendant.—Judgment was given for £27 19s.

UNSUCCESSFUL CLAIM AGAINST A BUILDER.

The judge of the Rochester County Court and a special jury on Saturday week investigated a claim for £300 made by a journeyman carpenter named Varrall against his employer, Mr. Charles E. Skinner, a builder, of Chatham, for the loss of four fingers while at work at a circular saw, which the plaintiff alleged was defective.—After hearing evidence the jury returned a verdict for the defendant, being of opinion that the saw was in good condition and that the accident arose through the plaintiff's handling the wood and saw unskillfully.—The Judge said he was glad that by a recent Act of Parliament such cases would be settled by arbitration in future.

PORT TALBOT RAILWAY AND DOCKS.

The new Port Talbot Railway and Docks are now within measureable distance of completion. The new dock, when completed, will be twenty-three acres in extent, and when joined to the old dock—an operation in course of progress—the total water area will be over one hundred acres. Four powerful steam navvies are now employed in the work of excavation in the dock proper. Eight-tenths of this work has now been completed. The entrance-lock is 450ft. long and 60ft. wide, and the walls are up to the coping level, and the gates—the outer ones of iron, working on the ram principle, and the inner ones of greenheart timber—will be erected within the next two months. The north pier, which forms a breakwater of 1500ft. long on one side of the entrance channel, has been carried out to its full length, and is practically completed. This pier is constructed of timber, and will give ample protection from the north-easterly gales. The south pier is of a more substantial character, and is carried out for a distance of 1000ft. from the existing breakwater, which is 1400ft. long. Piles are being driven, and huge blocks of concrete, weighing twenty tons each, are dropped into position on the timber foundation. This work is being rapidly proceeded with, a length of 360ft. having been already completed. The dock is being constructed on the principle adopted at Barry, with sloping sides—protected by copper slag—and projecting timber jetties, on which the coal tips will be erected. The railway is practically finished, with the exception of the junctions with the Great Western Railway at Pontyrril and Margam, and the central passenger station at Port Talbot is also an accomplished fact. The principal contractors are Sir Weetman Pearson and Sons, but it is interesting to

note that two Cardiff firms are also engaged on the work, namely, Messrs. Clark and Co., who are erecting the engine-sheds, and Mr. T. W. Davies, who has constructed the No. 5 Railway, close to Port Talbot.

THE GREAT CENTRAL RAILWAY.

The engineer in charge of the metropolitan section of the Great Central Railway Extension to London has just issued the following report to the chairman and directors of the Company:—"The covered ways and tunnels are now practically completed from Finchley Road to the bridge over the London and North Western Railway. Southwards of that point every effort is being made to urge forward the work. Covered way is progressing at nine and tunnelling at eleven places. Most of the bridges over the railway are completed. The covered way under Lord's Cricket Ground has been duly and punctually finished, in accord-

ance with the agreement with the Marylebone Cricket Club. Active progress is being made with the Grove Road and St. John's Wood Road bridges and with the coal yard. The foundations for the goods warehouse are now nearly all in, and those for the terminal station are in full progress. Contracts have been let for the whole of the buildings and roofing of the terminus station, and the work is being actively carried on. Roads No. 6, extending from Lisson Grove to Park Road, and No. 7, leading into Marylebone Road, are in a forward state. At Neasden 212,000 cubic yards of earth have been tipped upon the site of the sorting sidings, and the necessary bridge and culverts are well in hand. The contract for the locomotive and wagon sheds has been let.

At a meeting of the Whitehaven Town Council the Water Committee submitted a recommendation based on the report of Mr.

Hawkesley, C.E., for an improved water supply for the borough, costing about £10,000. The matter was deferred for further consideration.

THE concession for a railway from Pekin to Hankow has been given by the Chinese Government to a Belgian syndicate. This is the first Great Trunk line in China, and there was keen competition for it on the part of German, British, and American promoters.

SIR JOHN MAPLE has been interviewed on his scheme for the creation of a new Rotten Row in Regent's Park, beginning at York Gate, skirting the Botanic Gardens to the east, passing Gloucester Gate, and running on to York Gate. This would make a ride of about a mile, partly through an existing avenue of trees. Part of the scheme is the erection of a large restaurant near the Row, with provision for dining in the open air. The suggestion is now under consideration by the Chief Commissioner of Works.

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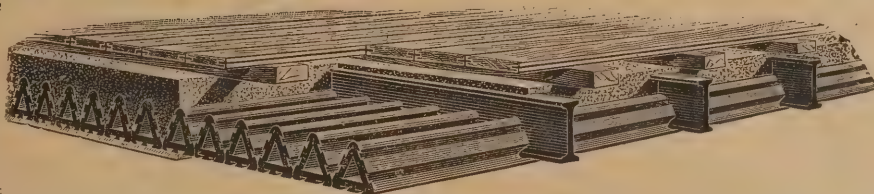


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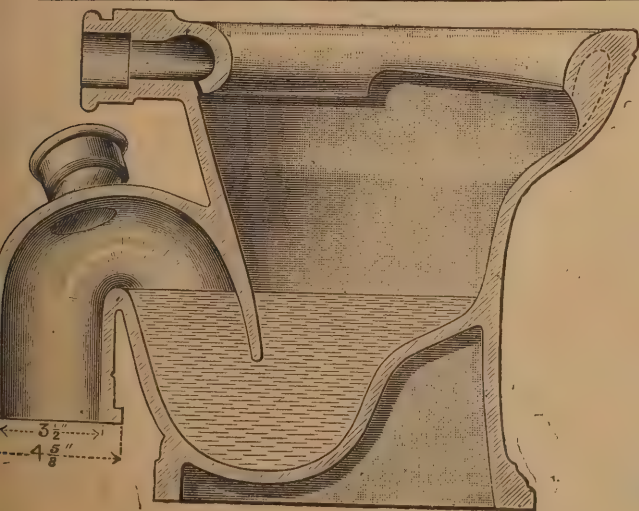
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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BEXHILL-ON-SEA.—For building proposed mansion, "Westwood," Bexhill-on-Sea, for Sir Edward Malet, G.C.B. Mr. G. Herbert Gray, Architect, Bexhill-on-Sea. Quantities by Mr. Sydney Saker, 37, Havelock-road, Hastings.—
C. Bowden ... £10,373 13 H. E. Crutenden ... £8,595 0
Barker and Rogers ... 8,800 0 Moore and Garner ... 8,589 0
Eldridge and Crutenden ... 8,655 0 A. H. White, St. Martin ... 8,490 0
Padgham and Hutchinson ... 8,620 0 Leonards* ... 8,483 0
*Accepted.

BISHOP AUCLAND.—For the erection of six houses, Cockton Hill, for Mr. J. Kent. Mr. F. H. Livesey, Architect, Market-place, Bishop Auckland.—

Masonry, Bricklaying, Joinery, and Plastering.—R. Blackett, Bishop Auckland* £1,828 0 0
Slatting.—R. Mascall, Bishop Auckland* 154 15 6
Plumbing.—Sykes and Co., Darlington* 175 0 0
Painting and Glazing.—M. Johnson, Bishop Auckland* 41 10 0
Whole Tender.—J. Manney ... 2,273 3 6
Whole Tender.—T. Manners ... 2,413 0 0
Whole Tender.—R. Burlinson ... 2,663 0 0
Masonry.—G. H. Bell ... 1,232 0 0
Plastering.—S. Kirby ... 176 0 0
Joinery.—L. M. Dennis ... 531 13 0
Joinery.—J. Braithwaite and Son ... 560 0 0
Joinery.—W. Hudson ... 652 18 5
Ironmongery.—E. Thompson ... 126 0 0
Ironmongery.—W. Kilburn ... 195 10 0
Painting.—F. Caldeburgh ... 46 2 4
Painting.—E. Thompson ... 44 10 0
Painting.—T. Palliser ... 49 16 0
*Accepted.

BLACKBURN.—For alterations to Infirmary, sanitation of wards Nos. 2 and 10, for the Board of Management. Messrs. Simpson and Duckworth, Architects, Richmond Chambers, Blackburn.—
Jno. Catterall ... £413 0 0 W. H. Law ... £366 2 6
Jas. Parker ... 397 0 0 Wm. Edmundson ... 350 0 0
J. Peckitt and Sons ... 376 0 0 T. P. Wilson and ... 1,450 0 0
Jas. Sharpless ... 370 0 0 Sons, Blackburn* 342 0 0
*Accepted.

BRIERLEY HILL.—For erecting a Primitive Methodist Church. Quantities by the Architects, Messrs. Hickton and Farmer, Walsall.—
Guest ... £1,583 10 E. A. Horton, Brierley Hill* ... £1,532 0
Hammonds ... 1,580 0 E. Seckerson ... 1,450 0
Dallow ... 1,567 0 H. Dorset and Co. ... 1,450 0
Bishop and Son ... 1,556 0
Brookes and Tandy ... 1,550 0
*Accepted.

BRIDGETOWN.—For erecting a Primitive Methodist Chapel at Bridgetown, for the Trustees. Quantities by Messrs. Hickton and Farmer, Architects, Walsall.—
William Wistance ... £295 0 Thomas Mason ... £722 15
S. Wootton ... 889 0 Albert Williams ... 719 13
R. Merton Hughes ... 882 0 Great Wyrley* ... 668 0
John Reynolds ... 825 0 William Ingram ... 668 0
M. B. Anderson ... 735 0
*Accepted.

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BRIGHTON.—For alterations to the buildings of the Municipal School of Art, Grand Parade, for the Town Council. Mr. F. J. C. May, C.E., Town Hall, Brighton.—
E. A. Knight and ... W. A. Field & Co. £2,254 0 0
Co. ... £4,762 17 10 Suttin and Ever-
J. Longley & Co. 2,392 0 0 shed, Brighton* 2,608 0 0
*Accepted.

CARLISLE.—For additions to the Cumberland Infirmary, for the Building Committee. Messrs. Wood and Ainslie, Architects, Broad Sanctuary Chambers, Westminster, S.W. Quantities by Mr. J. Albrighton, Ashton-on-Ribble.—
Beatty Bros. ... £1,625 J. and R. Bell* ... £1,453
John Laing ... 1,363 W. and H. Davidson ... 1,400
*Accepted.

[All of Carlisle.]
CHICHESTER.—For additions and alterations at the school, Bishop Otter College, for the Committee. Mr. Gordon P. G. Hills, Architect, 4, Adam-street, Adelphi, London.—
J. Longley ... £520 J. O. Holt* ... £478
A. W. Johnson ... 500
*Work modified and contract concluded for £429.

CLACTON-ON-SEA.—For the erection of a block of shops, &c., Wellesley and Carnarvon-roads, for Mr. Joseph Newman. Mr. Jas. W. Martin, Architect, Station Chambers, Clacton-on-Sea.—
J. W. Dixon ... £3,714 Ernest West ... £3,108
Myall and Ellis ... 3,300 H. and G. Linzell ... 3,080

DARTFORD.—For extending the rain-water reservoir, laying storm-water drain, and forming absorbing pond at the Gore Farm Hospital, near Dartford, Kent, for the Metropolitan Asylums Board. Messrs. A. and C. Harston, Architects, 15, Leadenhall-street, E.C.—
Leslie and Co., Ltd. ... £2,800 J. Dickson ... £1,630
Shillitoe and Son ... 2,200 A. T. Catley, 23, Lloyd-
Pedrette and Co. ... 2,097 square, W.C.* ... 1,500
Osenton and Co. ... 1,889
*Accepted.

DURHAM.—Accepted for the erection of Catholic schools. Mr. Chas. Walker, Architect, 20, Eldon-square, Newcastle.—
J. Caldeburgh, Durham City ... £3,604

HARROW.—For an extension of the present ham factory at Harrow, for Messrs. J. Adamson and Co. Messrs. Johnstone Bros., Architects, 39, Lower-street, Carlisle.—
F. F. Chinchin ... £2,692 0 0 J. Chessum and ... £2,372 0 0
Sons ... 2,825 0 0 T. Turner, Ltd., ... 2,297 0 0
W. Reason ... 2,716 0 0 Seth Grist, Ltd., ... 2,178 0 0
G. Wages ... 2,448 17 9 Aylesbury* ... 2,178 0 0
Spiers and Son ... 2,432 0 0
*Accepted.

LONDON.—For structural alterations and addition to No. 3, Brewer-street, Clerkenwell, E.C. Messrs. E. Saunders and Son, Architects.—
E. A. Roome ... £2,405 Kiddle and Son ... £2,575 0
W. Gladding ... 640 W. Reason* ... 569 10
F. W. Millman ... 617 0
*Accepted.

LONDON.—For rebuilding orphanage at Holly-place, Hampstead. Mr. G. Sherrin, Architect.—
Reason ... £2,495 Faulkner ... £2,298
Harris and Warrip ... 2,350

LONDON.—For the erection of a new warehouse, Shackwell-lane, Kingsland, N. Mr. J. Randall Vining, Architect and Surveyor, 89, Chancery-lane, W.C.—
Thomson and Son ... £9,450 McCormick and Son ... £7,777
F. and H. F. Higgs ... 8,990 W. Downs ... 7,714
Foster and Dicksee ... 8,988 W. Shurmer ... 7,557
Holliday and Greenwood ... 8,988 J. and C. Bowyer ... 7,538
W. Johnson and Co. ... 8,900 E. Lawrence and Sons ... 7,474
Turtle and Appleton ... 8,575 J. Grover and Son ... 7,288
J. Jarvis and Sons ... 7,975 C. Wall* ... 7,275
Patman and Fother-
ingham ... 7,780
*Accepted.

LONDON.—For the erection of a steam laundry and stabling, Finsbury Park, N. Mr. E. Mowbray, Architect, Bank Chambers, Finsbury Park. Quantities by Messrs. J. E. Goodchild and Son, 81, Finsbury-pavement.—
Lavington ... £2,565 Stevens ... £2,060
Kirby ... 2,545 Lidstone ... 1,997
Lascelles ... 2,480 Lown ... 1,990
Mattock ... 2,068 Hunt ... 1,960
Wilkinson ... 2,070 Pavey (accepted) ... 1,799

LONDON.—For fitting up the kitchen department of the Western Hospital, Seagrave-road, Fulham, S.W., for the Metropolitan Asylums Board. Messrs. A. and C. Harston, Architects, 15, Leadenhall-street, E.C.—
Clements, Jaekes, and ... T. W. Brooke ... £1,056
Co. ... £1,810 Moorwood, Sons, and ...
Denham and Sons, Ltd. 1,492 Co., 15, Southamp-
Burn Bros. ... 1,332 ton-row, W.C.* ... 927
J. and F. May ... 1,290
*Accepted.

LONDON.—For the erection of boundary walls, fences, and gates, at the site of the Tooting Bec Asylum, for the Metropolitan Asylums Board. Messrs. A. and C. Harston, Architects, 15, Leadenhall-street, E.C. No quantities.—
Thos. Gregory and Co. £3,459 McCormick and Sons,
W. Johnson and Co., ... Northampton-street,
Ltd. ... 3,998 Essex-road, N.* ... £3,270
*Accepted.

LONDON.—For rebuilding the "Artichoke" public-house, Jubilee-street, E., for Mr. Walter Martin. Mr. Ernest H. Abbott, Architect, 6, Warwick-court, High Holborn, W.C. Quantities by Mr. Alfred Johnson, 50, Imperial-buildings, Ludgate-circus, E.C.—
John Anley ... £1,480 0 0 W. Antill & Co. £1,350 0 0
Hall, Beddall, and ... A. E. Symes ... 1,324 0 0
Co. ... 1,465 0 0 T. Wontner ...
Robert Eddie ... 1,428 0 0 Smith and Son ... 1,276 0 0
Alfred Fordham ... 1,419 3 8 T. Russell ... 1,193 9 0
Samuel Salt ... 1,390 0 0

LONDON.—For the rebuilding of the "Duke's Motto" public-house, Jubilee-street, Whitechapel, E., for Mr. Walter Martin. Mr. Ernest H. Abbott, Architect, 6, Warwick-court, High Holborn, W.C. Quantities by Mr. Alfred Johnson, 50, Imperial-buildings, Ludgate-circus, E.C.—
John Anley ... £1,510 0 W. Antill and Co. ... £1,375 0
Hall, Beddall, & Co. ... 1,490 0 A. E. Symes ... 1,349 0
Robert Eddie ... 1,468 0 T. Wontner Smith ...
Alfred Fordham ... 1,457 7 and Son ... 1,297 0
Samuel Salt ... 1,420 0 T. Russell ... 1,226 4

POCKLINGTON (Yorks).—Accepted for additions, &c., to the grammar school. Messrs. Demaine and Brierley, Architects, 13, Leaden-street, York.—

Brick and Stone Work, and Carpentering and Joinery.—T. S. Ullathorne, Millgate, Selby ... £4,264 2 3
Slatting.—Sharp and Harper, Bath-road, Water-lane, Leeds ... 283 10 0
Plastering.—Johnson and Sons, Miffield, York ... 378 18 0
Plumbing and Glazing.—Hy. Hopkins, Petergate, York ... 666 0 0
Painting.—Bellerby and Son, Petergate, York ... 95 0 0

RHAYADER (Radnorshire).—For the erection of a church, Garreg-ddu, Eilan Valley, for the Birmingham Corporation. Mr. S. W. Williams, Architect, Rhayader. Quantities by Architect.—
E. Davies and Son ... £1,895 10 T. Lant, Rhayader* £1,548 0
Morgan Lloyd ... 1,793 10
*Accepted.

STOURBRIDGE.—For erecting an infant school, Careless Green, Stourbridge, for the Wollescote School Board. Messrs. J. H. Hickton and H. E. Farmer, Architects, Walsall.—
Bishop and Son ... £3,233 Dorset and Co. ... £2,659
C. A. Horton ... 3,096 T. Green ... 2,627
J. Meredith ... 2,785 J. P. Bloomer ... 2,626
T. Tadesley ... 2,770 J. Guest and Sons, ...
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By order,
ALFRED J. ALEXANDER,
Secretary and General Manager.
Bristol,
August 13th, 1897.

COMPETITIONS.

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TO ARCHITECTS.

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JNO. HARRISON,

Town Clerk.

August 6th, 1897.

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By order,

Town Hall, Cardiff, **J. L. WHEATLEY,**
August 4th, 1897. Town Clerk.

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EDWARD H. OXENHAM,

Lewisham Town Hall, Clerk.
Catford, S.E.
August 11th, 1897.

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 HENRY GEORGE HILLS,
 East Hill, Wandsworth, S.W., Clerk to the Board.
 August 10th, 1897.

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 Personal canvassing will be considered a disqualification.

By order,
 FRED. H. NORMAN,
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 July 28th, 1897.

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A Black-and-White Exhibition.

IN no way does the holiday season leave London so desolate as in the matter

of exhibitions of current Art. The summer picture galleries are all closed; their far-off autumn re-opening barely suggested on the portals. The Jubilee has ceased to weary us with the glories and reproaches of Victorian painting. Mr. Meyer's black-and-white gallery in Piccadilly is at the present moment the sole representative of contemporary work; and, happily for the town student at home in August, this quiet little salon well repays the attention which the surrounding barrenness facilitates. Here are displayed some of the best "originals" of Phil May, Oscar Wilson, Manuel, Sime, Eckhardt, Hassall, Dudley Hardy, W. M. P. Nicholson, and other masters of the illustrator's pen. At a first glance, certainly, one is tempted to say that modern illustration—as distinct from decorative black-and-white—reflects only the worst side of contemporary life, and holds the mirror to the mere trappings and trimmings rather than to the essential qualities of the present-day world; concerning itself chiefly with those phases of it by which we should least care to be judged and known. Our journalistic illustrators have not time to do what the great pen-draughtsmen of the sixties did for the magazines of their day—translating into a lighter medium all the exhaustiveness of treatment which one associates (rightly or wrongly) with painting, and making the letterpress a peg for pictures long surviving their occasion. And it would be unfair to look for the permanent elements of idealism in an Art essentially impressionistic in character, and only professing to record fleeting and superficial aspects of the real. It is difficult not to resent, for instance, J. W. T. Manuel's ruthlessly Parisian colouring of English types, but the black-and-white man of to-day can hardly do other than Parisianise an Art to which nearly all that is fresh and vital has been brought from the other side of the Channel. Moreover, such a virile personality as shows itself in Manuel, with his extraordinary gift for what may be called line-painting, will probably emerge unspoiled from such an influence. Of Dudley Hardy it seems hopeless now to expect a similar deliverance. Of the rest, S. H. Sime retains by far the most individual faculty. With a little more dignity and humaneness of method he would have been the Dante of black-and-white; but as they stand, his social satires nauseate, while they amaze us with the ghastly realism of their caricature, and the wizard brilliancy of their draughtmanship. Phil May and Oscar Wilson, Mr. Meyer tells us, share the honours of popularity in the matter of sales. Five or six guineas are often offered for small originals by either of these. The former, of course, has done for coster life on paper what Chevalier has done for it in song. Without any of the tenderness of the genuine humorist—the subtle grace, the dainty charm of a Randolph Caldecott, for example—he manages to seize the salient points of street-comedy with a rough-and-ready smartness and selective power. His line is vigorous and suggestive, but rarely poetic. For this last quality we must turn to the work of an Artist in a widely opposite field—the dreamy, sensuous, harmonious idylls

of Hassall—known better to some of us by his poster designs than by his illustrations. The brilliant portrait studies of T. W. M. Nicholson border closely on the nature of posters, and Mr. Meyer has some fine copies of his much-talked-of wood prints of Sarah Bernhardt, General Roberts, and Her Majesty the Queen. Herbert Railton's delicate and conscientious work appears in some of his romantic "moated-grange" effects, and one would fain have seen more architectural subjects, to which the medium of pen-drawing lends itself so well. One looks in vain for Edgar Wilson; but in fact his place is not here. The next decade will find him with the great decorative draughtsmen, while perhaps the young illustrators here sampled

The Antiquity of Man.

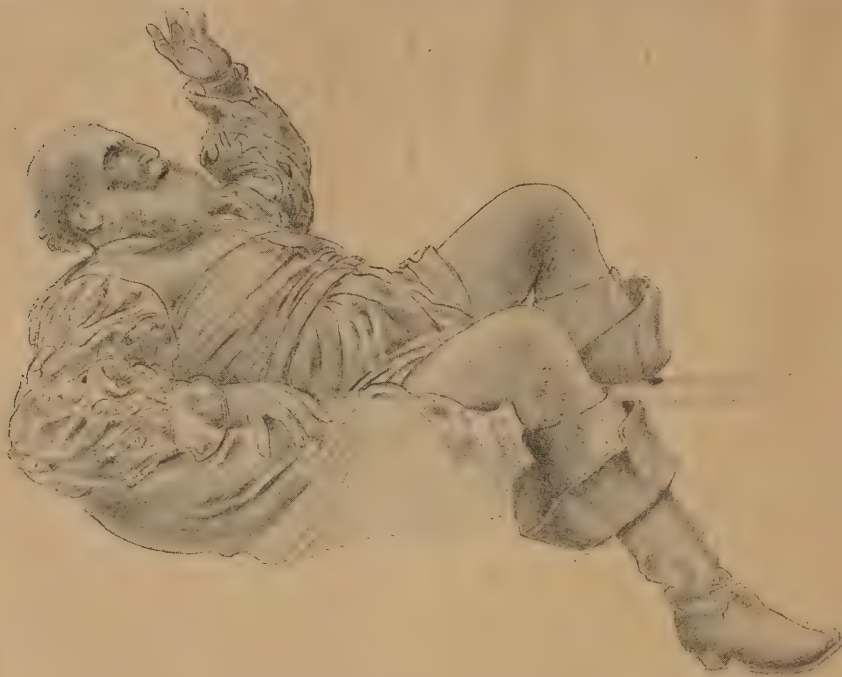
THE meeting of the British Association held in Toronto opened with an address by the President, Sir John Evans, K.C.B.—The President said: It will, perhaps, be expected of me that I should, on the present occasion, bring under review the state of our present knowledge with regard to the antiquity of man; and probably no fitter place could be found for the discussion of such a topic than the adopted home of my venerated friend, the late Sir Daniel Wilson, who first introduced the word "prehistoric" into the English language. Some among us may be able to call to mind the excitement, not only among men of science, but among the general public, when, in 1859, the discoveries of M. Boucher



"YSEULTE." FROM THE ORIGINAL ETCHING BY G. WOOLLISSCROFT REHAD.

will have developed immensely, and in widely various directions. It is interesting to know that the proprietor of this novel Exhibition still finds time to pursue his own work in black-and-white, and to contribute frequently to the illustrated press. The Public little knows how much it is indebted to the Press for bringing to the light artists who, but for the recognition received at the hands of the various weekly and monthly publications, would perhaps struggle on for years comparatively unknown and little cared for in the great human race.

de Perthes and Dr. Rigollot in the gravels of the valley of the Somme, at Abbeville and Amiens, were confirmed by the investigations of the late Sir Joseph Prestwich, myself, and others, and the co-existence of man with the extinct animals of the Quaternary fauna, such as the mammoth and woolly-haired rhinoceros, was first virtually established. It was at the same time pointed out that these relics belonged to a far earlier date than the ordinary stone weapons found upon the surface, which usually showed signs of grinding or polishing, and that, in fact, there were two stone ages in Britain. To these the terms neolithic and



TILE DECORATION. STUDY FOR FALSTAFF. FALSTAFF CLUB, COVENT GARDEN.
BY G. WOOLLISCROFT RHEAD.

palaeolithic were subsequently applied by Sir John Lubbock. Of late years the general tendency of those engaged upon the question of the antiquity of the human race has been in the direction of seeking for evidence by which the existence of man upon the earth could be carried back to a date earlier than that of the Quaternary gravels. There is little doubt that such evidence will eventually be forthcoming; but, judging from all probability, it is not in Northern Europe that the cradle of the human race will eventually be discovered, but in some part of the world more favoured by a tropical climate, where abundant means of subsistence could be procured, and where the necessity for warm clothing did not exist. Before entering into speculations on this subject, or attempting to lay down the limits within which we may safely accept recent discoveries as firmly established, it will be well to glance at some of the cases in which implements are stated to have been found under circumstances which raise a presumption of the existence of man in pre-Glacial, Pliocene, or even

MIocene TIMES.

In an address to the Anthropological Section in 1890 I dealt somewhat fully with the supposed discoveries of the remains of human Art in beds of tertiary date; and I need not here go further into the question. Suffice it to say that I see no reason why the verdict of "not proven," at which I then arrived should be reversed. When we return to Palaeolithic man it is satisfactory to feel that we are treading on comparatively secure ground, and that the discoveries of the last forty years in Britain alone enable us to a great extent to reconstitute his history. We may not know the exact geological period when first he settled in the British area, but we have good evidence that he occupied it at a time when the configuration of the surface was entirely different from what it is at present; when the river valleys had not been cut down to anything like their existing depth, when the fauna of the country was of a totally different character from that of the present day, when the extension of the southern part of the island seaward was in places such that the land was continuous with that of the Continent, and when in all probability a far more rainy climate prevailed. We have proofs of the occupation of the country by man during the long lapse of time that was necessary for the excavation of the river valleys. We have found the old floors on which his habitations were fixed, we have been able to trace him at work on the manufacture of

flint instruments, and by building up, the one upon the other, the flakes struck off by the primeval workman in those remote times, we have been able to reconstruct the blocks of flint which served as his material. That the duration of the Palaeolithic period must have extended over an almost incredible length of time is sufficiently proved by the fact that valleys, some miles in width and of a depth of from 100ft. to 150ft., have been eroded since the deposit of the

EARLIEST IMPLEMENT-BEARING BEDS.

Nor is the apparent duration of this period diminished by the consideration that the floods which hollowed out the valleys were not in all probability of such frequent occurrence as to teach Palaeolithic man by experience the danger of settling too near to the streams, for, had he kept to the higher slopes of the valley, there would have been but little chance of his implements having so constantly formed constituent parts of the gravels deposited by the floods. It must not for a moment be supposed that there are the slightest grounds for believing that the civilisation, such as it was, of the Palaeolithic period originated in the British Isles. We find in other countries implements so identical in form and character with British specimens that they might have been manufactured by the same hands. These occur over large areas in France under similar conditions to those that prevail in England. The same forms have been discovered in the ancient river gravels of Italy, Spain, and Portugal.

ON THE BANKS OF THE NILE.

many hundreds of feet above its present level, implements of the European types have been discovered; while in Somaliland, in an ancient river valley at a great elevation above the sea, Mr. Seton-Karr has collected a large number of implements formed of flint and quartzite, which, judging from their form and character, might have been dug out of the drift deposits of the Somme or the Seine, the Thames or the ancient Solent. In the valley of the Euphrates, implements of the same kind have also been found, and again farther east, in the lateritic deposits of Southern India, they have been obtained in considerable numbers. It is not a little remarkable, and is at the same time highly suggestive, that a form of implement almost peculiar to Madras reappears among implements from the very ancient gravels of the Manzanares at Madrid. In the case of the African discoveries we have as yet no definite

Palaeontological evidence by which to fix their antiquity; but in the Narbadá Valley of Western India, Palaeolithic implements of quartzite seem to be associated with a local fauna of Pleistocene age, comprising, like that of Europe, the elephant, hippopotamus, ox, and other mammals of species now extinct. There seems reason for accepting this Indian Pleistocene fauna as in some degree more ancient than the European. Is this not a case in which the imagination may be fairly invoked in aid of science? In Eastern Asia, in a tropical climate, with the means of subsistence readily at hand, may we not picture to ourselves our earliest ancestors gradually developing from a lowly origin, acquiring a taste for hunting, if not, indeed, being driven to protect themselves from the beasts around them, and evolving the more complicated forms of tools or weapons from the simpler flakes which had previously served them as knives? May we not imagine that, when once the stage of civilisation denoted by these Palaeolithic implements had been reached, the game for the hunter became scarcer, and that his life in consequence assumed a more nomad character? Then, and possibly not till then, may a series of migrations to "fresh woods and pastures new" not unnaturally have ensued, and these following the usual course of "westward towards the setting sun" might eventually lead to a Palaeolithic population finding its way to the extreme borders of Western Europe, where we find such numerous traces of its presence.

AS YET OUR RECORDS

of discoveries in India and Eastern Asia are but scanty; but it is there that the traces of the cradle of the human race are, in my opinion, to be sought. Directly we encounter the relics of the Neolithic period, often separated from the earlier remains by a thick layer of underlying stalagmite, we find flint hatchets polished at the edge and on the surface, cutting at the broad and not at the narrow end, and other forms of implements associated with a fauna in all essential respects identical with that of the present day. Were the makers of these polished weapons the direct descendants of Palaeolithic ancestors, whose occupation of the country was continuous from the days of the old river gravels? or had these long since died out, so that after Western Europe had for ages remained uninhabited, it was repopled in Neolithic times by the immigration of some new race of men? Was there, in fact, a "great gulf fixed" between the two occupations? or was there in Europe a gradual transition from the one stage of culture to the other? It has been said that "what song the Syrens sang, or what name Achilles assumed when he hid himself among women, though puzzling questions, are not beyond all conjecture;" and though the questions now proposed may come under the same category, and must await the discovery of many more essential facts before they receive definite and satisfactory answers, we may, I think, throw some light upon them if we venture to take a few steps upon the seductive if insecure paths of conjecture. So far as I know we have as yet no trustworthy evidence of any transition from the one age to the other, and the gulf between them remains practically unbridged. We can, indeed, hardly name the part of the world in which to seek for the cradle of Neolithic civilisation, though we know that traces of what appear to have been a stone-using people have been discovered in Egypt, and that what must be among the latest of the relics of their industry have been assigned to a date some 3500 to 4000 years before our era. The men of that time had attained to the highest degree of skill in working flint that has ever been reached. Their beautifully made knives and spear-heads seem indicative of a culminating point reached after long ages of experience; but whence these artists in flint came or who they were is at present absolutely unknown, and their handiworks afford no clue to help us in tracing their origin.—The President concluded with an appeal for the establishment of a Government Department of Ethnology.

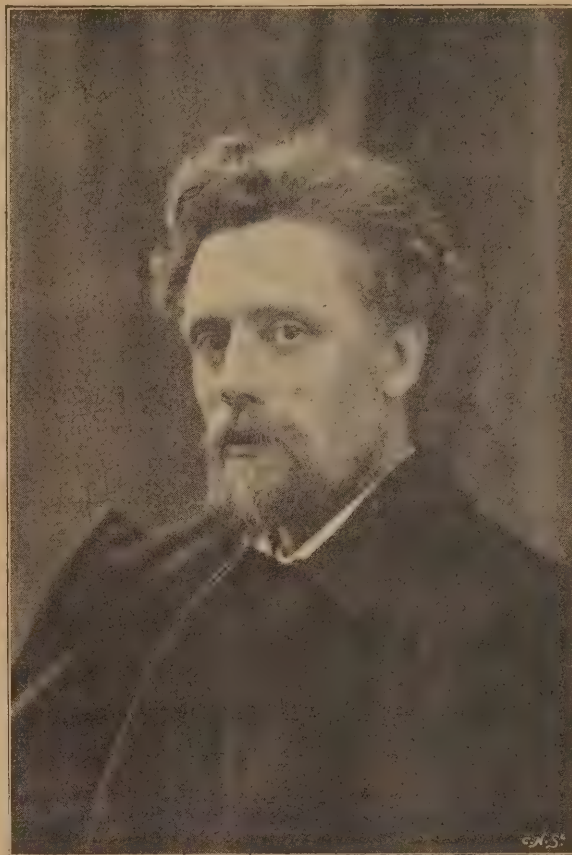
Men Who Design.

G. WOOLLISCROFT RHEAD.

ON most questions there is something to be said for both sides. That the designer and decorator have in the past been unjustly slighted and barely permitted to call themselves artists is true enough; and it is not in the least to be marvelled at if they feel somewhat sore upon the point. Moreover, it cannot but be a source of satisfaction to all who care for Art, or grasp the conditions necessary for its healthy existence, that the balance has been redressed, and that the unity of the Arts is being better understood. But now that—thanks chiefly to the influence of the Arts and Crafts Society and to the Renaissance of Decorative Art that has grown up with it—the designer has asserted his righteous claim to a recognition of the dignity and importance of his work, is there any harm in asking whether, in the bad old days when the “story-painter” monopolised the name of artist, and the designer was looked upon as a kind of tradesman, the state of the decorative Arts was such that we can point to much really great work, work that will live, produced during that time? Is it not too true that the decorator—though small blame to him, in the narrow conditions in which he found himself—was not able to take that lofty view of his work and of the nobility of its mission by which alone great Art can be produced? Our point is one sometimes overlooked in the consideration of this matter; that, so long as the designer was prevented, from whatever cause, from producing work that was original, dignified, and based on sound artistic principles, it is useless to bemoan the fact that public recognition of his

importance was withheld. The designer who is the subject of this paper, Mr. G. Woolliscroft Rhead, in an article upon “Stained Glass,” written for St. Paul’s, refers incidentally to the fact that an artist to the ordinary public mind is a person who paints pictures, while the mere decorative man is regarded as a sort of upper journeyman, and adds sarcastically: “There is some reason in this view of things. It is undoubtedly possible to invest a picture with artistic merit. Several instances might be mentioned, even in recent times, and on the other hand much of the decorative work done at the present time is merely mechanical stuff.” But then, on the other hand, so is much of the pictorial!

As a man gets a reputation more easily through the pictorial than through any other branch of Art that he may pursue, it is probable that Mr. Rhead is best known to the public—as he was to the present writer—as a member of the Royal Painter Etchers, and more especially as the etcher who engraved the large plates after the works of the late Ford Madox Brown. He is indeed the only man who has interpreted Madox Brown in black-and-white. As an example of Mr. Rhead’s skill with the needle, we reproduce an exceedingly graceful and sympathetic study of a girl’s head—“Yseulte,” one of his original etchings. While we cannot here devote



DESIGN FOR BOOK COVER.

further reference to Mr. Rhead’s pictorial work, either as etcher or painter, we may remark that all his work manifests a fine decorative sense, and a skill in the disposition of mass as well as a feeling for grace of line.

Born in 1855 at Etruria, in the heart of the Staffordshire Potteries, Mr. Rhead has all his life been in touch with the various art crafts. He comes of an artistic stock, for his father was an artist, and, of his brothers, Mr. Louis J. Rhead is well known as a designer of artistic posters, and Mr. Fred. Rhead is one of the cleverest designers now working in the Staffordshire Potteries. Apprenticed first in Etruria, he finished his time in London, where, in 1871, he entered Minton’s Art Pottery Studio in Kensington Gore, then under the direction of Mr. W. S. Coleman. A fire brought the establishment and Mr. Rhead’s employment to an abrupt close, and having won a National Scholarship at South Kensington, he proceeded to study there in the etching room, under Legros, the master who has influenced him most, with the exception of Ford Madox Brown. He next entered the employment of Messrs. Doulton, and while there was responsible for the execution of one of the largest commissions for tiles to be seen in London. To say “to be seen” is not, perhaps, strictly correct. The work was the decoration of the Falstaff Club in Covent Garden, formerly known as Evan’s Supper Rooms. From some cause the club has never been opened, and Mr. Rhead’s work—the designing of a series of large tiles illustrating the adventures of the fat knight—has not had a proper opportunity of inviting public inspection. We reproduce one of his pencil studies for these tiles.

Of the subject of stained glass Mr. Rhead has made a careful study, and I cannot do better than quote some passages from his essay upon the subject already referred to. “The English Renaissance of stained glass is, I believe, mainly due to the efforts and influence of a few men of the so-called pre-Raphaelite School, the majority of whom are still working amongst us*—Dante, Rossetti, Ford Madox Brown, Edward Burne-Jones, and William Morris. Only one of these, Rossetti, was an actual member of the famous brotherhood, but all are Pre-Raphaelite in principle—that is,

* This was written in 1893.

they founded their artistic creed on the earlier and purer forms of the Art; and during the last thirty years or so stained glass has recovered much of its once lost beauty, both as to design and material." After referring to American stained glass in general, and especially to Mr. La Farge's attempt to fuse pieces of glass together to render leads unnecessary, Mr. Rhead remarks: "If there is one thing more than another which is distinctly characteristic of stained glass, it is the lead lines. These should always be insisted upon, and can hardly be too much insisted upon, as nothing strengthens a design more than fearless leading. Burne-Jones is said to have declared that it gives him absolute pleasure to draw a lead line right across a face."

We reproduce Mr. Rhead's cartoons for a window in the private chapel of Lady

Mr. Rhead's work in the design for a book cover, and the illustration for the "Tempest." Both are examples of fine decorative convention, and reveal incidentally that Mr. Rhead has studied closely the decorative value of plant forms.

There remains to mention one more sphere of Mr. Rhead's activities, that of art teaching. As art master of the Borough Polytechnic he has a great opportunity, to which he is fully alive. He has the taste for and knack of teaching, and brings to it an enthusiasm and an interest that should ensure success. He found the school much neglected on the Art side, but has struck out a line of his own that has already made him an influence with his pupils; amongst whom are many lithographers, bookbinders, and others connected with the applied arts, so that his chance of doing good work is a promising one. He makes

LONDON SCHOOL BOARD BUILDINGS.

THE annual report of the Works Committee of the London School Board gives an abstract of the work done during the year ended March 25, and shows the progress made in the provision of accommodation which has been sanctioned by the Board and the Education Department. The committee, over which General Moberly, the vice-chairman of the Board, presides, after stating what had been done in connection with ten sites for new schools and additional land for forty-six existing schools, with regard to which compulsory powers were obtained in 1895-96, report that in the past year it had been decided to schedule twenty sites for new schools and additional land for enlarging twenty-five



ANGELS OF ANNUNCIATION, CRUCIFIXION, AND RESURRECTION. WINDOW FOR LADY DE VESCHI, ABBEY LEIX. BY G. WOOLLISCROFT RHEAD.

De Veschi, Abbey Leix, Queen's co., executed by Messrs. Powell. The figures represent the Angels of the Annunciation, the Crucifixion, and the Resurrection. We also give reproductions of a fine cartoon for a Crucifixion, exhibited at the Academy two years ago but not yet executed; and cartoons for designs representing John the Baptist and St. Andrew, also done for Messrs. Powell. These, even without the colour upon which stained glass so much depends, suffice to show that Mr. Rhead fulfils the conditions he has himself laid down; realising "that a stained glass window is part and parcel of the architecture of a Church, and not a hole in the wall through which a picture may be seen." Even the greatest artists have failed to grasp this radical principle; witness those splendid failures by Sir Joshua Reynolds at Oxford.

We give illustrations of other branches of

it his business to push design, to study and stimulate his students' individuality; dropping as much as possible the old system of teaching Art by "stumping" from the antique.

Mr. Rhead is a staunch and disinterested supporter of the Arts and Crafts Society, for he remarked to me when leaving his pleasant home at Putney, "Even if they reject my work, I shall always stick by them."

THE old iron gate, which bears the date 1728, at the end of the avenue in Gray's Inn Gardens, has just been painted, and the elaborate scroll work picked out in gold.

DURING the past few weeks a completely new peal of bells has been placed in the tower of St. Patrick's Cathedral, Dublin. The bells have been cast at Loughborough, at the works of Messrs. Taylor and Co.

existing schools or playgrounds, or for the purpose of

CARRYING OUT GENERAL IMPROVEMENTS.

In some cases, however, the sites and the land had since been omitted from the schedule. During the year the Board agreed to purchase various interests in sites, at a cost of £116,561, the surveyors' fees amounting to £659. The large amount spent upon sites for school buildings since the Board came into existence will afford some idea of the extent of the provision which has had to be made for the accommodation of the children. The value of all the sites purchased or agreed to be purchased previous to March last was £3,222,412, and the cost £430,621. According to a table prepared by the finance department, the cost of the sites for 325 schools, the accounts for which had been

completed at September 29th, 1896, was £6 11s. 10d. per child, and the average cost per head of the school buildings was £13 14s. 1d., and of the furniture and fittings 10s. 7d. Up to Lady Day, 1896, the total number of permanent schools which had been erected and opened was 409; and during the year under review nine additional schools and fifteen enlargements were opened. The nine new schools were erected—one in Finsbury, one in Greenwich, one in Hackney, one in East Lambeth, two in West Lambeth, one in Southwark, and two in Tower Hamlets.

THE TOTAL ACCOMMODATION PROVIDED

was for 8072 children, and the cost of sites, buildings, and furniture was set down at £237,875 12s. 6d., or an average cost per head of £29 9s. 4d. The enlargements were carried out in Chelsea, Greenwich, Hackney, East Lambeth, West Lambeth, Southwark, and Tower Hamlets. They provided additional accommodation for 4761 children at a cost of £98,787, or an average cost per head of £20 14s. 11d. Loans were authorised by the Education Department in respect of the nine new schools and sites amounting to £239,527, and on account of the fifteen enlargements and sites amounting to £131,202. As to future provision of schools, tenders were accepted during the year for erecting nine new schools—one in Chelsea, two in Finsbury, two in Hackney, two in West Lambeth, one in Marylebone, and one in Westminster—giving accommodation for 9968 children, at a cost of £170,936, or £17 2s. 11d. average cost per head. Tenders were also accepted for eight enlargements—one in Greenwich, one in East Lambeth, one in West Lambeth, two in Southwark, and three in Tower Hamlets—to accommodate 2696 children at a cost of £69,832, or £25 18s. per head. With regard to the new schools it should be stated that each would be provided with a hall for each department, which was not counted in the accommodation of the school, and the tenders included the provision of centres for cookery, laundry, manual training, or special instruction, and in eight cases a drawing class-room. As to the enlargements,

THE VARIATION IN COST

arose mainly from the fact that in enlarging the buildings the opportunity was taken to improve the existing schools so as to make them thoroughly efficient, and in some cases centres were added. Tenders had also been accepted for providing twelve cookery centres, fourteen laundry centres, eighteen manual training centres, seven schools for special instruction, rooms for upper standards at three existing schools, extending a chemical laboratory, providing covered playgrounds at three schools, carrying out drainage and sanitary works to twenty-nine schools, and for other works. The total amount of the tenders for sanitary work at twenty-four of these schools was £32,398. In their last report it was stated that the committee was carefully considering the whole question as to the cost of the schools, and that they had appointed a sub-committee to consider the subject. This committee recommended, with the view of reducing the cost, that, among other things, the Board should revert to the old specification in force in 1885-86 for the next six schools, subject to certain modifications; and the Board had sanctioned the experiment. Among the other works referred to, the committee state that the proposed deaf institution at Anerley, for which a tender had been accepted for £38,920, had been abandoned because the Education Department had

DECLINED TO APPROVE OF THE PLANS.

The industrial school for girls at Isleworth would soon be ready for occupation. Homerton Training College had been purchased and would be used for temporary school accommodation and for the provision of various centres. During the year 132 schools had been painted or cleaned inside or out. The system of carrying out repairs to buildings by workmen employed direct by the Board was being continued in nine of the 18 districts of the clerks of works for repairs, the total number of men so employed



CARTOON FOR ALTAR-PIECE. BY G. WOOLLISCROFT RHEAD.



S.S. ANDREW AND JOHN THE BAPTIST. WINDOW FOR MIDDLETON CHENEY CHURCH.
BY G. WOOLLISCROFT RHEAD.

being 49. On the subject of rates of wages paid by contractors, the report states that in all building contracts a revised clause was now inserted providing that where the London scale of wages applied the contractor should pay to the workmen not less than the rate of wages from time to time mutually agreed upon by the Central Association of Master Builders of London and the representatives of the men's unions, the agreed rate of wages at present recognised being set out in the schedule. In other districts where the London scale of wages did not apply the clause provided that the contractor should pay not less than the minimum standard of wages which might for the time be usual. At Lady Day last the following amount of school accommodation was in course of provision:—

EIGHTEEN SCHOOLS WERE BEING ERECTED, providing accommodation for 19,013 children, and nine enlargements giving accommodation for 3521 children. Thirty-two additional sites for new schools had been or were to be purchased. The schools to be erected on twenty of these sites would provide accommodation for 17,920 children, and in the case of the other twelve the accommodation had not been determined. Ten new sites for schools had been scheduled, and the schools to be erected on five of them would give accommodation for 4185. Twenty-four enlargements had been sanctioned for 8075 children; and the Education Department had also sanctioned the provision of sites, which would be scheduled next session, in five districts.

THE extent of building operations in London is well illustrated by the returns of the great water companies. In July of last year these companies supplied 832,120 houses, while in July of the present year they were supplying 846,646. Thus, within the twelve months there has been an increase of 14,526 separate services, or, to put the matter in another way, there have been built 14,500 houses.

COLOURED GLASS.

BY WILLIAM NORMAN BROWN.

AMONG all the many decorative arts which were employed in the service of the Church in ancient days, not one was more freely employed and at the same time more carefully cultivated than the art of painting on glass. This is not to be wondered at, seeing that it offered peculiar facilities for the teaching and illustrating the story of their faith to the worshippers who thronged the ecclesiastical edifices. Being in windows, it would at once attract attention by means of the rich and varied colours, and in an age when the common herd could not read, the story told by the picture would be understood by the multitude. Hence the popularity and the stability of coloured glass throughout all ages for the embellishment and beautification of places of worship. In windows, prior to the thirteenth century, the prevailing characteristics are a severity of outline combined with a richness of colouring. The treatment was flat, and the effect was gained by placing one colour against another. The effect, however, was very rich, and from the number of small pieces employed, quite kaleidoscopic. The drapery on the figures, together with the faces and hands, were very thickly outlined, which served not only to delineate form but to express shadows. The drawing of the figures, as may readily be imagined, was very stiff and angular, and the clinging draperies of the earlier figures forcibly suggested the lingering influence of Classic Art. The position of the figures was sometimes most quaint, the drawing being very incorrect, though usually bold, vigorous, and expressive. In the long, lancet windows of the Early English period they were frequently divided into medallions with foliated ornament, the groups being defined by cutting the figures out of glass lighter in colour than the background, the

same treatment being adopted in the ornament, where the foliage was generally placed on a dark blue or ruby background. Another way of treating windows was to place a single figure under an architectural canopy, the whole being surmounted with an ornamental border; while another favourite method was the Jesse window, which represented a tree usually growing out of a recumbent figure of Jesse, the father of David, the tree, as it went upward, forming panels by means of the branches, which contained figures representing the genealogy of the Saviour, and which windows were mainly constructed of white glass. The change from the Early English to the Decorated period was a very slow one, following Architecture, the details in which marks the transaction. Nature seems to have offered the Artists their inspiration, and the long-continued conventional foliage gradually assumed more natural shapes, with the result that the ornament of this period is of a far more interesting and varied character than any of its predecessors, while the figures are less angular and stiff, and light and shade began to be employed, the result being of greater richness and softer treatment in the whole work. It was about this time that the means of staining white glass a beautiful yellow became known, the process being effected by means of silver, which was of great advantage to glass painters, opening out quite a new field for them, and white glass was largely employed in figure subjects. In the beginning of the sixteenth century a reddish brown pigment, not unlike burnt sienna, was introduced, it being employed to give a flesh tint to white glass. Prior to this time a coloured glass of a somewhat pink tone had been employed for flesh tints. Later on in the century it was discovered that other colours could be imparted by means of enamels, which, however, is fatal to true glass painting, which, according to an authority, should be where "the design is composed of different pieces of stained glass (i.e., glass coloured in the making) joined together by narrow strips of lead, the main lines of the design being necessarily formed by the lead; whilst the shading and other details were painted in bold lines of opaque dark-brown." It was early in the sixteenth century also that the Art reached its highest development in the matter of technique. At this period the figures were fairly drawn and painted, and pictorial effects were attempted with a very great measure of success, considering the transparent nature of the material; the Flemish artists carrying the Art to the highest pitch in these respects, albeit their beautiful work marked the decadence of the Art, as they overlooked the fact that windows were primarily intended for the admittance of light, and by overloading their designs defeated the object which they ought to have kept in view, the result being that instead of soft-toned windows, our Churches were filled with what were really transparent mural paintings, which led to the deterioration and ultimately the extinction of the manufacture of coloured glass. It was not until the beginning of the present century that the Art revived, and then it proceeded on different lines to that of the thirteenth, fourteenth, fifteenth and sixteenth centuries, the elder Pugin and his school entering with enthusiasm in its revival, though for long they met with but indifferent success.

THE Rev. S. Baring-Gould, the well-known novelist, is about to spend a fortnight in excavating pre-historic villages on Dartmoor.

THE Dean and Chapter of St. Asaph have decided to reconstruct the organ built in 1830 by Messrs. Hill and Company, at a cost of £1200.

THE sixtieth anniversary of the building of the Bishopsgate Chapel is being celebrated by the adoption of a scheme of improvement involving an outlay of fully £1000.

A new sewerage scheme to prevent the flooding of the low-lying portions of the borough when there are heavy rains, has been recommended to the Middlesbrough Corporation by Mr. Mansergh, engineer. The estimated cost is £53,000.

FVLL FATHOM FIVE THY FATHER LIES OF HIS BONES IS CORAL MADE
THOSE ARE PEARLS THAT WERE HIS EYES NOTHING OF HIM THAT DOTHT FADE
BVT DOTHT SVFFER A SEA CHANGE INTO SOMETHING RICH AND STRANGE



SEA-NYMPHS HOVRLY RING HIS KNELL HARK! NOW I HEAR THEM DING DONG BELL

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
September 1st, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

SIR WILLIAM RICHMOND, we learn, has slightly altered his design for the mosaic of the Crucifixion which is to fill one of the quarter-domes in St. Paul's Cathedral. His intention was to represent the figure of Christ crucified to the Tree of Life. It has since been pointed out that there is no authority in ancient manuscripts for representing the Crucifixion as upon the Tree of Life, though the floriated cross is not uncommon, and the Tree of Life does occasionally appear in conjunction with the Crucifixion. Sir Edward Burne-Jones, we believe, was the first to make a design without the cross. In these circumstances, Sir William Richmond has decided to alter his design, and will represent Christ upon the cross with a background of rose trees. This is a symbol for which there is good authority.

THE rapidly-growing popularity of the seaside towns of Norfolk amongst English holiday-makers is leading to extensive building operations at various points along the coastline, and a new watering-place is being developed by a Norwich Syndicate at Walcot and Happisburgh, midway between Yarmouth and Cromer. Walcot and Happisburgh are at present the names of tiny clusters of huts and cottages perched on miniature cliffs, and occupied by labourers and fisherfolk, but at a recent auction sale nearly 200 lots of valuable building land changed hands, realising an aggregate of £1205. The Walcot estate is an elevated plateau, fronted by a beautiful stretch of beach, and the new railway connection with North Walsham promised by the G.E.R. Company will probably insure for it almost immediate prosperity.

IN regard to the Slade Scholarships of Fine Art in University College, London, in connection with the Slade Professorship of Fine Art, Cambridge, established in pursuance of the will of Felix Slade in 1869, the Charity Commissioners have drafted a new scheme, under which, if it should be finally adopted, two scholarships of the annual value of £35 each for proficiency in drawing, painting, and sculpture, or in one or more of those arts, will be offered by the Council of University College for competition in every year. Each scholarship will be tenable for three years. Scholars must be under the age of twenty-one at the date of their election, except in cases specially recommended by the Slade Professor. One clause provides that "If in the opinion of the Council no candidates in any year show sufficient merit, the scholarships shall not be awarded in that year, or if there be only one candidate of sufficient merit, only one scholarship shall be awarded."

ECCLESIASTICAL Dublin is on one side of the Castle, learned Dublin on the other. Both are notable; the latter, perhaps, being more widely known than the former. As regards this Dublin, it is unique, at any rate, among the towns of the United Kingdom. It has two Cathedrals and only one bishop. The most

ancient part of the present structure is very Late Norman and Early English Architecture; but it has been extensively restored, and parts have been rebuilt. Dilapidation rendered this inevitable. The work, begun in 1871, was done at the cost of a munificent citizen, Mr. Henry Roe. St. Patrick's Cathedral is a fine cruciform church, in the pointed style, with a spire which was added in the last century. According to tradition, it occupies the site of a church built by converts on the spot where its Patron Saint had preached. Be this as it may, the Norman archbishop built a church on this spot at the end of the twelfth century. But the present structure is of several dates; for, among other vicissitudes, the Cathedral suffered from a great fire in the earlier part of the seventeenth century. It, too, was becoming dilapidated; but, even earlier than Christ Church, it found a munificent benefactor in Sir Benjamin Guinness, who defrayed the whole cost of restoration.

THE famous ruins on the south side of Virginia Water have recently become unsafe, and a day or two ago the Crown authorities had to take steps to protect the public from harm by dismantling the columns, and only one is now left standing. The ruins, which are visited by thousands annually, are near World's End Gate, and consisted of old Corinthian pillars of Roman origin, disposed (by Sir J. Wyatville) in such a manner as to give the casual observer the idea that they were the remains of some ancient temple formerly standing on the spot. The fact is that they came from Tripoli in 1825, and a Greek inscription on the marble altar informs us that it was dedicated by Publius Aurelius, a servant of Jupiter, to Jupiter Helios, the great Serapis, and to the other gods worshipped in the same temple. Another of the ruins is a tombstone, on which is a Latin inscription to the effect that "Marcus Julius Cethegus, of Philys, erected this to his most beloved wife, Domitia Rogata, who lived twenty-three years." Close by the ruins is the beautiful cascade, constructed in a very natural manner of stones brought from Bagshot Heath, and by the side of the waterfall immense stones are so arranged as to form a cavern, and this is known as the Robbers' Cave. In the summer months George IV., after he came to reside at Windsor, used to spend a great deal of his time at Virginia Water. At that time it was a sealed book to the public, whereby its wonders were exaggerated just in proportion as they were unknown. There were several pleasure boats, and the King used to traverse the lake in a vessel built to resemble an elegant Moorish tent crowned with the crescent. The whole study of George IV. was privacy, as the vast extent of drives projected with that view fully attest. Judge, then, the annoyance experienced by his Majesty when he ascertained that the owner of an allotment standing immediately above Virginia Water had erected an immense tower, from which the movements of himself and the Court might be clearly observed. The tower, from its peculiar shape and construction, was called the "Clock Case," and for some time it formed an insufferable annoyance to the pleasure-loving monarch. After a protracted negotiation, the proprietor was induced to sell it to the Crown "for a consideration," and the "Clock Case" still remains towering high above the lake, but can no longer be used for vexatious purposes.

A CURIOUS conflict is in progress between the Paris Municipality, the State, and the Richelieu family. More than a year ago extensive scaffolding was erected before the Chapel of the Sorbonne, which shelters the tomb of Cardinal Richelieu. The chapel had long been in a bad state of dilapidation, and the Architect of the Sorbonne had decided to have it repaired. The scaffolding is still standing, but the work of restoration has not even been begun. A little late in the day the Architect applied for the necessary funds to the Municipality, who refused them on the ground that the State was responsible for the bill. The State, appealed to in turn, declared that the outlay devolved upon the Municipality, who at last consented to consider the

matter, but only on the understanding that it should be given entire control over the destinies of the chapel. At this juncture the Richelieu family stepped in, and pointed out that Cardinal Richelieu had built the chapel with his own money on the express condition that it should serve for all time as a mausoleum for his house. The family refuses to give up its rights, the Municipality asserts that they have fallen into abeyance, and in the meantime the building is tumbling to pieces behind a scaffolding that seems likely to outlast it.

ASHBURNHAM HOUSE, Dover Street, the residence of the Earl of Ashburnham, has just been disposed of by Messrs. Edwin Davidson and Company, of South Audley Street. The old-time mansion with its lodge and forecourt, was built by Lord Dover in the early part of last century, and gave name to the street in which it is situated. Almost before it was finished, however, it was purchased by the then Earl of Ashburnham, in whose family it has ever since remained. Ashburnham House, though externally somewhat gloomy in appearance, is celebrated for its beautiful interior decorations by Adams, as well as for its splendid collection of pictures and other works of Art, including many rare pieces of *boile* furniture formerly belonging to Marshal Duc de Richelieu. The house was let by George, third Earl of Ashburnham, to the Russian Embassy, which remained there till 1854. It was the residence of the Emperor Nicholas during his visit to the Queen in 1844.

THE inauguration of the monumental fountain erected to the memory of Jules Anspach, Burgomaster of Brussels between 1863-1872, took place last week. The monument, which is highly artistic, consists of a sculptured pediment of white marble, with a bronze medallion and obelisk surmounted by a figure of St. Michael, the Patron Saint of Brussels. It stands on a fine site in the centre of the new boulevards, and is a fitting tribute to the memory of a citizen who was instrumental in effecting a vast scheme of improvement both from a hygienic and architectural point of view.

THE twenty-seventh autumn exhibition at the Walker Art Gallery, Liverpool, now open, ranks high among the provincial displays of the year. The Committee has been fortunate in securing the most prominent pictures shown at the Royal Academy this season, and in addition to these a vast number of very meritorious works have found a place in the galleries. There is a marked absence of the mediocre and indifferent, although here and there canvases are to be met with which have little claim to recognition. Military subjects are strongly represented, and quite a number of large canvases depicting stirring incidents on the battlefield are to be found on the walls. Chief among these is the famous picture "The Roll Call," by Lady Butler, which has been graciously lent by her Majesty the Queen in response to a request by the Art Committee of the Liverpool Corporation. This celebrated work, painted so far back as 1874, has been assigned the place of honour in the Grosvenor Room. Occupying a prominent place in the same room is the recently-painted portrait of Lord Derby, by Mr. Orchardson, R.A., which, whatever its faults in the matter of likeness, is a really splendid bit of work. A picture which will attract much attention is that of Mrs. Meyer and her daughters, painted by Mr. John S. Sargent, which created quite a furore on its first appearance at the Royal Academy this year, and which is regarded by many competent judges as one of the most notable productions of recent years. Another prominent Academy picture which the Committee has been successful in securing is a marine piece entitled, "Pilchards," by Mr. C. Napier Hemy, which has been purchased by the President and Council of the Royal Academy of Arts under the terms of the Chantry Bequest. Sir E. J. Poynter, the President of the Royal Academy, is represented by a small but charming work, and a fine example of the late Sir John Millais also occupies a place in the collection. Other

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THE FOUNDATION OF MANASSEH

ETCHING BY G WOOLLISCROFT RHEAD, R.E. AFTER THE FRESCO



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CHESTER BY THE ROMANS.

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prominent Academicians who have contributed important pictures are Sir E. Burne-Jones (who sends "Depths of the Sea"), Mr. J. McWhirter, Mr. Waterhouse, Mr. Luke Fildes, and Mr. G. H. Boughton, whose "Vision at the Well" is one of the principal pictures in the Grosvenor Room. Mr. David Murray, A.R.A., sends a delightful picture of Hampstead Heath, and Mr. Colin Hunter, A.R.A., is represented by a fine Scotch scene with a highland river in the foreground, and a purple, heath-clad moor beyond. The Glasgow School is not much in evidence, but one or two of its members have contributed works. Mr. Lavery's Portrait of a Lady is a work of outstanding excellence, and another Glasgow artist, Mr. E. A. Hornell, forwards two very good examples of the peculiar style of Art directed by him. Several Midland artists are represented, these including Mr. Walter Langley and Mr. S. H. Baker.

IMPROVEMENTS are progressing in Fetter Lane, but that street has changed much less than many City thoroughfares. Most of the buildings in Fleet Street have been renewed twice or thrice; but, despite its intensive traffic, Fetter Lane has always been subsidiary to Chancery Lane, and its narrow unloveliness remains, save for the new word Office, almost unredeemed. Nevertheless, it is clear that its day is coming, and it may yet see it a fine and handsome street. Gradually the tributaries, like the great streets themselves, are being transformed. Already much has been done, and the Colonial foreign visitor who has not seen London for five and twenty years, or even less, would be amazed at the change which has been made in its outward aspect. In all that constitutes a "fine city" it has in that time gained enormously, and the capital of the Empire is now in a fair way to become the handsomest, as it already is the most brilliant and amusing, metropolis in the world.

WORKMEN are busily engaged in completing the installation of the electric light at the Houses of Parliament. The scheme has really been in process of development for a dozen years or more. Instead of finishing the work at one time, successive First Commissioners of Works have been content to proceed by instalments. At present unusual activity prevails, owing to the desire to reach something like finality before the retirement of Mr. Prim, the resident engineer in charge of the lighting, warming, and ventilation, under whose auspices the installation began. The House of Lords adopted the new light in its legislative chamber a couple of years ago. But in this matter the House of Commons is more conservative, and still retains gas. Illuminations and ventilation, in fact, are there dependent the one upon the other, the heat generated by the gas jets between the glass ceiling and the roof being utilised in removing the vitiated atmosphere below. Electricity, nevertheless, reigns supreme in the dining rooms, lobbies, and corridors, and its use is gradually extending in the committee rooms. On the Peers' side the Royal Gallery is being treated in a similar manner, and the dining room and grand committee room will be attended to in due time. Throughout the entire building there are no fewer than 5000 lights, and it will be scarcely credited that the electric current is supplied from outside, although it could probably be produced at half the price inside. Not long since it was proposed to substitute electricity for gas in Westminster Hall, but the project was abandoned, it is said, from the notion that the fumes of the older light tended to preserve the huge timbers supporting the ancient roof.

POWERSCOURT HOUSE, the seat of Lord Powerscourt, near Enniskerry, co. Wicklow, which was visited last week by the Duke and Duchess of York, is one of the most beautifully situated residences in the United Kingdom. It was built after the style of an Italian palace by the Italian architects and workmen who visited Ireland in the last decades of the eighteenth century. The terrace on which the

house has been built overlooks a lovely lake. Powerscourt House possesses one of the finest private collections of painting and sculpture, and is noted for a grand salon in which George IV. was entertained on his visit to Ireland in 1821.

THE students attending Professor Gourlay's Architecture and Building Construction classes at the Glasgow and West of Scotland Technical College have been remarkably successful in this year's examinations. All the students presented in Architecture and architectural design passed, two of them taking an excellent, five a first-class, and five a second-class certificate. In honours building construction, four students were admitted to the practical examination in design, held in London, and all passed, James M. Alexander, John M. Arthur, and James S. Boyd taking first classes with bronze medals, while John Smith passed second class. In advanced building construction, sixty-six students were presented, of whom eighteen passed first class and forty-seven second class; while in the elementary stage seventy-one were presented, and none failed; sixty-four take "pass" and seven "fair." In masonry, Archibald Scott took second place in the United Kingdom in the ordinary grade, thereby obtaining the bronze medal of the City and Guilds of London Institute with £1. One other student took a first class in this grade, and two a second class. In the honours grade of masonry three students passed. In carpentry and joinery ten students took first classes, and five second classes in the ordinary grade. In the National competition, the awards for architectural designs executed entirely in the class-rooms and for measured drawings of old work, executed under the superintendence of the professor and his assistants, were the highest yet received by students of this college. They consist of one silver medal, which was won by James M'Kissack; two bronze medals to James Mather and William S. Moyes; two national book prizes to William S. Moyes and Joseph E. Potts; and two prizes for sets of works awarded to William McClelland and Gordon L. Wright.

"A WORSHIPPER OF ST. PAUL'S" writes: "The artist who for some time past has been engaged on the responsible task of decorating with mosaics the interior of St. Paul's has recently permitted his designs for yet further operations to appear, with explanatory notes, in the columns of one of your contemporaries. Consequently it is to be fairly concluded that, by such course, he invites public opinion on his subject. On such ground, his frankness in thus challenging comment at a timely moment, when his work is at the stage of incubation only, must be duly acknowledged. Meanwhile, it may be pertinent at this juncture to ask, on behalf of the public and in the interests of Art, why it is that a building of supreme national importance such as St. Paul's, whose design is so stamped with power, breadth, and repose, expressed in classic Renaissance, is to be further subjected to quasi-medieval mosaics of involved elaboration? In the work accomplished in the choir we have evidence of the method employed by results of confused detail, aggressive glitter, and garish colour, unknown to ancient mosaic work of any style, and in direct opposition to the spirit of Wren's noble achievement. In reference to the 'quarter domes,' so called, at the diagonal points of the 'crossing,' it is shown, in the published evidence referred to, that these are intended to be filled with like treatment of mediæval complexity. They are designed not in true Renaissance character, as duly fulfilled, by Alfred Stevens and G. F. Watts, in the spandrels immediately above as the keynote for mosaic decoration by which to support, and harmonise with, the style and scale of the surrounding Architecture, but, *mirabile dictu*, they are to include a strangely close repetition of the mystically mediæval Crucifixion, designed by Sir Edward Burne Jones for the American Gothic Church at Rome, built by the late George Edmund Street."

"It is to be noted, too," the letter continues,

"that when the sculptured alto-relievo of the Crucifixion, in the new reredos of the Cathedral, raised the Protestant outcry against its alleged symbolical design, the authorities defended the work by proving that the treatment was not symbolical, but strictly historical, in aim simply to represent the scene on Calvary presumably as it occurred. The answer was conclusive. But in the projected mosaics of the quarter domes the Crucifixion is to be treated not historically, but by deliberate intent in mediæval abstruse mysticism! The Saviour is shown with arms outstretched against 'The Tree of Life,' beneath whose uncruciferous, scroll-like, and foliated branches are shown, with other figures, Adam and Eve, accompanied by an extended array of symbolical wheat sheaves. Thus the Cross and the Calvary of history are eliminated in favour of archaic symbolism, nowhere more anachronous than in St. Paul's."

THE historic castle of Carisbrooke has undergone partial restoration, though most of the building is still a block of roofless ruins. The Gate House has now been roofed in and all the rooms of that portion of the castle newly-floored. These are the guard-room, the portcullis chamber with the room above, three rooms in the north-west turret, and the spiral staircase in the south-west turret. No alterations have been made externally to the building, and the original gates, built in 1553, are still subsisting. It is proposed to utilise the rooms newly roofed and renovated for the purpose of storing ancient manuscripts and antiquities connected with the castle and the Isle of Wight. The rooms will be opened in the course of a few days, and admission will be free for one hour daily, a small charge to cover expenses being made at any other time. Excavations have recently been made at the top of the ancient keep, and hammer heads and pike heads, with remnants of domestic utensils, have been found in the ruins at that altitude, showing that in former years the keep itself was used as a dwelling-house.

ONE of the Royal palaces of Henry VIII.—structures not infrequently met with in the older parts of London—situate in Hercules Road, Lambeth, is now in course of renovation, after having been given up for many years to the possession of rats and "spooks"—the latter being vouched for by half the schoolboys of the district. The building is a picturesque one, and, whether ever a Royal residence or not of the Eighth Henry's period, has distinct architectural claims to recognition. It has but barely escaped demolition by the South-Western Railway Company, whose bridge-widening operations are being rapidly pushed in this direction.

FOR some days past Baker Street, Portman Square, has been in a state of chaos owing to the relaying of the wood-paving. The London Hydraulic Power Company has taken the opportunity of laying its mains through Baker Street; therefore it has been necessary to break up the concrete laid a few years ago when wood-paving was introduced. A foot or two below the concrete have been found many old wooden pipes or conduits, made by boring trunks of trees, which were tapered and fitted into each other, and were used for conveying the water. These pipes, at a rough calculation, have been in the ground for over a hundred years, and several were discovered in an excellent condition.

THE discovery at Madaba, in the land of Moab, of a mosaic representing a plan of Palestine in the fifth or sixth century of our era, enables us, according to M. Philippe Berger, to determine the exact site of the Church of the Holy Sepulchre, which was destroyed by the Persians, A.D. 611. This primitive shrine figures in the plan, a description of which is now published. The value of this mosaic in determining the topography of the Holy Land at this period of the Dark Ages is said to consist in the fact that it is no fancy production, but a work of contemporary geography, as the Artist saw it in his time.

SUPPLEMENT.

SEPTEMBER 1ST, 1897.

MODERN SANITATION.

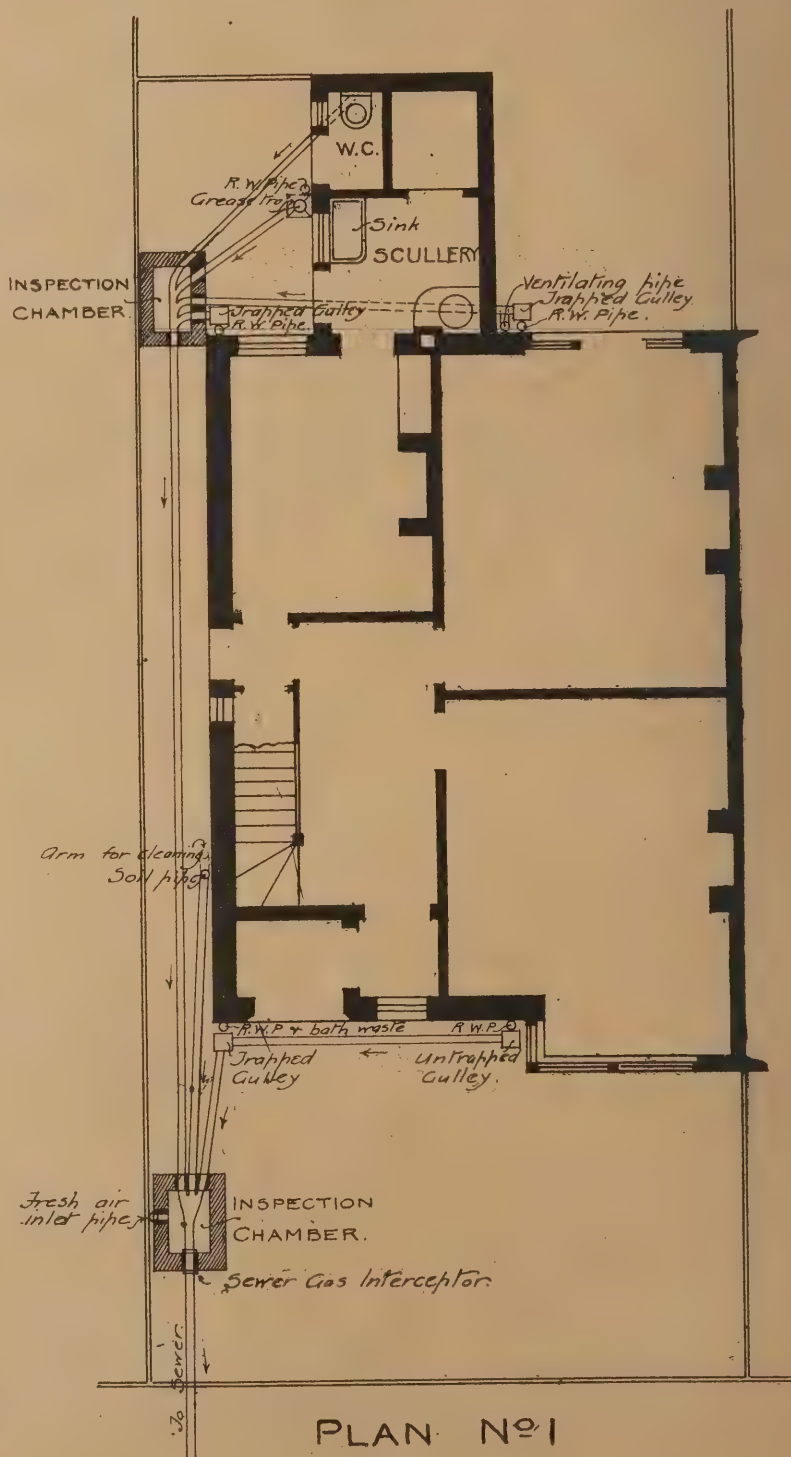
BY H. A. SAUL.

ALTHOUGH the term "Sanitation" implies all that relates to the preservation of health, it is intended in this series of articles to deal only with that portion of the science which has to do with the appliances for the reception, and the means of removal, of refuse from the habitation of man, the medium of conveyance of which is water.

In nothing which forms part of a completed edifice has such rapid evolution taken place as in the methods of draining and the forms of sanitary fittings, an evolution toward greater elaboration as regards pipes and traps, yet one tending to simplicity of principles, if principles can be considered to have existed in the days of curiously curved drains, non-trapping, and non-ventilation; indeed, one is sometimes inclined to think that the only principle recognised was that of "out of sight, out of mind," with a result, it is to be feared, very far from out of smell.

The general principles which govern the modern application of the science are now pretty universally recognised in this country, and the framing of bye-laws and the appointment of sanitary officials by municipal bodies, district councils, and other local authorities, is a happy deterrent to all who would err in sanitary matters, either from ignorance or for the purpose of effecting a false economy. With such precautions one would hardly expect to find an insatiable modern building in the kingdom, but, alas, diphtheria, fevers, and deaths caused by defective drains are still common, though the cases more frequently occur in dwellings of a "jerry" or speculative type, those for which bye-laws—in the suburbs of London at any rate—were particularly intended to apply. Whether such defects are the result of incompetence or want of vigilance on the part of the inspecting authority or on account of his inability to be thorough in districts where houses are being erected rapidly and in large numbers, is not a matter for present consideration, but it points to the necessity of every person about to occupy a residence being quite sure that the drains and fittings are in perfect order. Nor are buildings of this class the only ones upon which it is necessary that such vigilance be bestowed; it behoves all who have the superintendence of drainage work to be ever watchful, for though workmanship may have been specified to be of the best nature, and the employer of labour may be of the best intentions, yet there are still workmen who prefer to do things in the easiest manner, though at the cost of efficiency, and the temptation to "scamp" is great in work which is to be covered up and permanently hidden from sight.

A drain is an underground series of pipes for the purpose of conveying waste liquid matter to a point of disposal, and the drain in relation to a building is that which conveys



PLAN. N^o. 1

the liquid waste from the building to a sewer, cesspool, or collecting chamber in connection with a system of land treatment. Soil is the refuse from water-closets, urinals, slop sinks, &c., and the drain to convey such refuse is the soil drain. Surface-water is that from roofs, yards, and the like, and the drain to convey such water is the surface-water drain. In most of the London districts the soil and surface-water are combined in one system and conveyed by a common pipe to the sewer, but in some districts the soil only is permitted to be discharged into the sewer, and the surface-water has to be kept distinct, and taken by a separate drain into a main surface-water drain which usually runs alongside the sewer; this latter method is known as the *Dual System*.

A drain must be so constructed that no gas may enter into it from the sewer; that no gas or smell may enter the house; and that it has free ventilation from one end to the other. The first and second cases are overcome by means of pipes bent to hold water in such a manner that the upper surface of the bend dips into the water and forms a *seal*; such dipped pipes are called traps, and this system of shutting out sewer gas and smells is known as *trapping* or *intercepting*, and is the first principle of sanitation.

The accompanying plan, No. 1, is the ground-floor of a semi-detached villa, standing upon a 30ft. plot with a narrow side entrance, and the system of drainage is shown in accordance with the first method described above, viz., the combination of soil and surface water, which it is now proposed to consider in detail, leaving the plumbing arrangements to be dealt with in another article.

The drains throughout are 4in. in diameter, of good glazed, stoneware, socketted pipes, laid with a fall of not less than 1in. in 5ft. for soil drains and 1in. in 10ft. for surface water drains; these falls apply to all systems of drainage, and are the minimum; it is advisable to have a greater fall wherever possible. The pipes are placed with their sockets at the upper end, i.e., against the flow, and are laid upon a hard bottom, in this instance assumed to be gravel, but where the earth is loose, sandy or soft, upon a bed of concrete. It will be obvious that a hard bottom is very essential, as otherwise a slight settlement of the ground would cause a drop in the drain and a consequent fracture either of the joint or of the pipe; or if the settlement extended for a considerable distance, a fracture might not occur, but the fall of the drain would be materially interfered with, with the result that an opportunity would occur for the soil to collect in the bottom of the drain and accumulate so as to form a stoppage.

The pipes are connected to one another by means of Portland cement, which is run into the sockets so as to completely fill them, and adheres firmly to the roughened interior of the same, and likewise to the roughened end or spigot of the pipe which rests within the socket. The cement is generally used "neat," i.e., without the admixture of sand, but there seems to be a disadvantage in this method, as drains have frequently been found with cracked sockets, caused by the swelling of the cement, which had been used too new, and as it is very difficult sometimes to ensure the cement being of just the proper age, it is advisable to add a small quantity of very clean and sharp sand, mixed in the proportion of about one half measure of sand to a whole measure of cement.

It will be noticed that all the drains are laid in straight lines; this is an important principle of modern sanitation, and is adopted because the least possible resistance is thus offered to the flow of the matter within the pipes, for facility of inspection, and for ease in removing a stoppage or obstruction. It may appear, at first thought, that such care to obtain straight lines is unnecessary in the case of surface-water drains, as stoppages are very unlikely to occur in pipes intended only for the conveyance of water containing little or no sediment; experience has shown, however, that stoppages in these pipes are of no infrequent occurrence, and as in nearly every instance a little care in planning will enable

drains to be laid direct without difficulty, and with easy means of access for inspection or cleaning, curves should be shunned as clumsy and old-fashioned.

(To be continued.)

IPSWICH WORKHOUSE.

ENTERING or leaving Ipswich by the old turnpike road connecting the borough with the Eastern District of Suffolk, one notices an extensive group of new buildings steadily rising on what was until recently a large field on the town side of Rushmere Heath. The buildings and intervening grounds extend over about three acres. The ground selected is almost level. The soil is sand and gravel. The plan is that of detached or semi-detached blocks. On the right of the principal entrance—that from the Woodbridge Road—stand the vagrant wards. This block is quite isolated from the other buildings. The central portions of the main block of buildings comprise the administrative block—the committee room and offices, the residence of the master, the dining-hall, the kitchen, sculleries, laundry, stores, and serving-rooms. The dining-hall is a spacious, well-lighted room, with stone-mullioned windows and open timbered roof: there is a dado 5ft. high in glazed brick, with an arched opening at one end, at the level of the first floor: this forms a comfortable-looking gallery. Corridors running right and left of the administrative block connect with the two principal wings. Each wing is well supplied with baths and other sanitary requirements. The infirmary constitutes a very special feature of the new buildings. It is reached from the main block by a corridor, from which the visitor enters the central portion of the building. At the foot of the main staircase, corridors to the right and left lead to the infirmary wings. Dormitories and day rooms for both sexes are provided, with accommodation for the medical officer and nurses. The front of the infirmary is to the south, and access to large covered balconies, situate at the level of the first floor, is possible from all the apartments. Flanking the infirmary are somewhat novel structures, known as sanitary towers—very substantial-looking erections, with annexes, by means of which sanitation, according to present day theories, will be thorough and complete. The towers, which are reached from both stories of the infirmary, are all faced on the inside to a height of 4ft. with glazed brick, having a moulded capping, and every one of the angles, both vertical and horizontal, is circular, whether of glazed brick, wood, or plaster, this being done to ensure perfect cleanliness. All through the infirmary every precaution has been taken to meet sanitary requirements. The baths are all of white porcelain, and the lavatories and sinks are of the same material, the patterns chosen being those of appliances most in favour with the highest sanitary authorities. There are several small detached blocks in the grounds of buildings designed for workshops and other auxiliary requirements, a boiler-house, and a mortuary. In the boiler-house will be fixed a large boiler, manufactured by Messrs. E. R. and F. Turner. This will be in close proximity to a large rain-water tank—an excavation capable of storing nearly 70,000 gallons of water, the distribution of which over the building will be effected without difficulty. The drainage will be by means of stoneware pipes, each drain being accessible by means of covered manholes at intervals throughout the system. The sewage will be conveyed to a large tank fixed at an extreme point, and will then be pumped and used on the farm. The buildings are faced externally with red bricks, all provided locally; the inside walls, where not plastered, are faced with bricks from the neighbourhood of Peterborough; the roofs will be covered with Bangor slates. The flooring, where deal is not used, will be of granolithic stone: this portion of the material is being prepared by Mr. Goody, of Colchester, who is also doing the window sills and those for the doors. All the corridors and sanitary towers will be

paved with terazzo. The heating arrangement in the corridors and dining hall is by means of steam pipes; in the day rooms and dormitories open fireplaces, or Shorland's Manchester ventilating grates, will be provided. The contract was for £26,500, or thereabouts, and was taken, after a very close contest, by Messrs. Grimwood and Sons, of Sudbury, and, owing to the dissolution of the partnership, is being carried out by Messrs. Grimwood and Sons, of Ipswich. The plans are by Messrs. Stephen Salter and Adams and Mr. W. Lister Newcombe.

Surveying and Sanitary Notes.

THE sixth annual report upon the sanitary condition of the First or Upper District of the County of Renfrewshire has been prepared and submitted to the County Council and District Committee by Mr. James I. Little, county sanitary inspector. It states that very satisfactory results have been obtained from the work of the staff during the year 1896. Special attention has been given to the sanitary arrangements of new houses, in connection with which 102 drainage systems have been examined and tested. The test has also been applied to 117 old properties which were found to be defective, and all have been renewed or remedied. The inspections made for the recovery of nuisances numbered 11,435, and the number of notices issued as to defects found was 685, of which 671 have been attended to. One special drainage district has been formed and new sewers constructed. In the course of his report, Mr. Little comments on the fact that although a large number of additional houses have been built throughout the district—246 buildings, comprising 501 dwelling-houses, having been erected during the past two years—still the housing of the working classes has not been much improved thereby. In the villages, where the greatest want of houses at a low rent are required, no new buildings have been erected. The want of houses suitable for certain classes prevented the authorities from taking extreme measures.

MANCHESTER'S difficulty in the treatment of its sewage was again a subject of discussion at the last meeting of the Mersey and Irwell Joint Committee. A further extension of time was asked for on behalf of the Corporation. The position of the Corporation was described by Mr. Alderman M'Dougall, who said that a scheme of artificial filtration dealing with the entire sewage of the city would cost, according to an estimate of the city surveyor, no less a sum than £275,000, and the filters would need renewal every three years, at a further cost of £120,000. These figures were so alarming that some members of the Committee were disposed to revert to the culvert scheme. For the same capital expenditure they could take the effluent altogether away from the neighbourhood.—The Committee decided to give the Corporation a further period of three months in which to prepare a scheme.

COLONEL DURNFORD, on behalf of the Local Government Board, recently held a public inquiry at the Church Schools, Castleton, into the application of the Rural District Council of Chapel-en-le-Frith to borrow £2000 for the purposes of carrying out works of sewerage and sewage disposal for Castleton. Some time ago a scheme was prepared, the estimated cost of which was £3000, but it was thought this would be too expensive for so small a place, and eventually an alternative scheme was prepared, estimated to cost £2000, which was adopted by the District Council, and an application was made to borrow the amount. But it was expected that £2200 would have to be asked for, owing to the land costing £400 instead of £200. Other evidence having been taken, the inquiry closed, and the inspector, with others, visited the site of the proposed outfall works.

THE Borough Surveyor of Blackpool has submitted to the members of the Council his scheme for widening the Promenade—an improvement that has now been talked of for some years. He shows that the present Promenade varies in width from 24ft. to 70ft., and the footpath from 5ft. to 17ft. The scheme, which will probably be put before Parliament for sanction, provides for a footpath 10ft. wide on the east side next the houses, a carriage way 55ft., an island footpath

10ft. wide, a raised track for a double line of trams the whole length of the Promenade 20ft. 9in. wide, and then the Promenade footpath, with a uniform width of 42ft., faced at the side by a sloping hulking of 15in. granite setts. The sea wall will be exactly like that on the North Shore works, and will run on the same level till it meets the new Promenade opposite the south end of the Tower, where it will join the upper one. The concrete of which it will be constructed will be 7ft. thick,

and faced above the granite hulking with concrete blocks and coping. The estimates state that the cost of the section from the south end to the Manchester Hotel will be £117,896; the second section, from the Manchester Hotel to the Royal Hotel, £98,661; and the third section, as far as the North Shore Promenade, £132,424; a total cost of a little under £350,000. The scheme has already been considered by the Council, and awaits final decision.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Sept. 3	Batley—Villas at Wilton Park	Guardians	W. Hanstock, Architect, Branch-road, Batley.
" 3	Bridlington—Offices at Workhouse	Rural District Council	S. Dyer, Architect, Bridlington Quay.
" 3	Christchurch, Hants.—Isolation Hospital	Harbour Trustees	A. Druiit, Clerk to Council, High-street, Christchurch.
" 3	Dundee—Six Iron Sheds	Paragon Ironworks	G. C. Buchanan, Engineer, Harbour-chambers, Dundee.
" 3	Halifax—Extension of Store Room and Foundry	Industrial Co-operative Society	A. G. Dalzell, 15, Commercial-street, Halifax.
" 4	Briton Ferry, Glamorgan—Seven Dwelling Houses		H. A. Clarke, Architect, Briton Ferry.
" 4	Chippenham—Cottage Hospital		F. H. Phillips, Town Clerk, Chippenham.
" 4	Halifax—Stabling, Coach House, &c., Savile Park		S. Wilkinson, Architect, Sowerby Bridge.
" 4	Leith, Scotland—Public Baths	Corporation	—Simpson, Architect, Town Hall.
" 4	Sheffield—Alterations, &c., to Workhouse, Fivale	Guardians	C. J. Innocent, 17, George-street, Sheffield.
" 4	Armagh—Alterations to County Infirmary	R. Phillips	J. C. Boyle, C.E., The Mall, Armagh.
" 4	Penzance—Villa, Marazion	War Department	O. Caldwell, Architect, Penzance.
" 5	Sandhurst, Berks.—Canteen, &c.	Glamorgan County Council	Royal Engineer Office, North Aldershot.
" 6	Barry, Cardiff—Alterations, &c., to Intermediate School	Committee of Visitors	County Police Station, Barry Dock.
" 6	Brentwood, Essex—Boller House	School Board	W. Gepp, Clerk to Committee, Chelmsford.
" 6	Coventry—Enlargement of School	School Board	T. F. Tickner, Bishop-street, Coventry.
" 6	Gateshead—Board School		Oliver and Leeson, Architects, Mosley-street, Newcastle.
" 6	Keighley—Church and Schools		W. H. and A. Sugden, Architects, Cavendish-st., Keighley.
" 6	Leicester—Class Rooms, &c., Ripley Hospital		Austin and Paley, Architects, Lancaster.
" 6	Mytholmroyd, Yorks.—Vicarage		Jackson and Fox, 22, George-street, Halifax.
" 6	Roths, Scotland—Addition to Seafield Arms Hotel		R. B. Pratt, Architect, County Bank House, Elgin.
Sept. 6	Keighley—St. Barnabas' Church and Schools, Twaites Brow		W. H. and A. Sugden, Architects, Cavendish-street, Keighley.
" 6	Hebburn—Shedding, &c., Argyle-street	Urban District Council	Surveyor's Office, Argyle-street, Hebburn.
" 7	Birmingham—Restoration of St. Michael's Church, Brierley Hill	Rector and Churchwardens	Cossins, Peacock, and Bewley, 83, Colmore-row, Birmingham.
" 7	Bolton—Inland Revenue Office	H.M. Commissioners of Works	Hon. R. B. Brett, Secretary, 12, Whitehall-place, S.W.
" 7	Gravesend—Police Cells, &c.	Corporation	Borough Surveyor, Town Hall, Gravesend.
" 7	Highgate Hill, N.—Workhouse Infirmary	Islington Board of Guardians	E. Davey, St. John's-road, Upper Holloway.
" 7	Hampton—Workshop, &c.	Urban District Council	Council's Offices, Hampton.
" 7	Nelson, Lancs.—Walverden Board School	School Board	T. Bell, 14, Grimshawe-street, Burnley.
" 7	Stroud—Chimney Stack, &c.	Guardians	Guardians' Offices, John-street, Stroud.
" 8	Birmingham—Cottages (2) and Laundry, Marston Green Cottage Homes	Guardians	C. Whitwell, Architect, Cannon-street, Birmingham.
" 8	Rotherhithe, S.E.—Shelter at South Wharf	Metropolitan Asylums Board	T. Duncombe Mann, Clerk, Norfolk-street, Strand, W.C.
" 8	Perth—Stables	Police Commissioners	R. M. Killop, Borough Surveyor, 12, Tay-street, Perth.
" 9	Felling—Re-building Brindling Hotel		H. Miller, Architect, Felling.
" 11	Llanfihangel-y-Creuddyn—Restoration of Church Tower	Restoration Committee	J. P. Evans, Vicarage, Llanfihangel-y-Creuddyn.
" 13	Camberwell, S.E.—Railing and Gates	Vestry	O. S. Brown, Vestry Hall, Camberwell.
" 13	East Preston, Sussex—Bricklayer and Plumbers' Work	Workhouse Guardians	H. Howard, Town Offices, Littlehampton.
" 13	Nailsworth—Church, &c.		Vale and Kingsford, Surveyors, Gloucester.
" 13	Carlisle—Teachers' Rooms, &c., Caldewgate Schools	School Board	Johnstone Brothers, 39, Lowther-street, Carlisle.
" 13	Folkestone—Fifty Artisans' Dwellings	Corporation	Borough Engineer, 29, Dover-road, Folkestone.
" 14	Halifax—Confectionery Works		M. Hall, 29, Northgate, Halifax.
" 14	Shibden, near Halifax—School at Salterlee	Ffaldan Collieries Company	J. F. Walsh, Lanes. & Yorkshire Bank-chambers, Halifax.
" 15	Pontycymer, Wales—Forty-five Cottages	School Board	Colliery Offices, Pontycymer.
" 16	Falmouth—Schools, Alterations, &c.	Committee	W. Jenkins, Clerk, Falmouth.
" 18	Wadsley, Yorks.—Wash-house, Engine-room, &c.	Infirmary Committee and Guardians	—Cotterill, Wadsley Asylum, Sheffield.
" 20	Warrington—Infirmary Buildings	Lancashire Asylum Board	W. Owen, Cairo-street-chambers, Warrington.
" 20	Winwick—Asylum	Urban District Council	J. Beaman, Delf Farm House, Winwick, near Warrington.
" 21	Llandudno—Electric Lighting and Refuse Destructor Buildings		E. P. Stephenson, Council Offices, Llandudno.
" 21	London—Erection of Camp Sheathing	Commissioners of Sewers	Guildhall, E.C.
" 21	Northwram, near Halifax—Residence		J. T. Walsh, Lanes. and Yorks. Bank-chambers, Halifax.
No Date.	Ashton-under-Lyne—Doctor's Residence		J. Eaton, Sons, & Cantrell, Stamford-st., Ashton-under-Lyne.
"	Belfast—Public Laundry, The Abbey	New Granville Hotel Company, Limited	W. J. Fennell, Architect, Chichester-street.
"	Buxton—Retaining Wall	Urban District Council	Garlick and Flint, Architects, Buxton.
"	Canklon, near Rotherham—Mission Church		E. J. Hubbard, Architect, Moorgate-street, Rotherham.
"	Chesterfield—Two Cottages		F. T. Skelton, North-road, Clown, Chesterfield.
"	Church Gresley—Wesleyan Chapel		E. C. Clarke, Prudential-buildings, Nottingham.
"	Clara Vale, near Ryton—Store and Pair of Cottages	Blayton-on-Tyne Co-operative Society	Liddle and Brown, Prudential-buildings, Newcastle.
"	Colchester—Additions to the "Cannons"		C. E. Butcher, 3, Queen-street, Colchester.
"	Colchester—House, Beaconsfield-road	E. Hennemeyer	C. E. Butcher, 3, Queen-street, Colchester.
"	Derby—Converting Seven Houses		Coulthurst and Booty, 4, Albert-street, Derby.
"	Dover—Alterations, &c., to Hospital Ward		Fry and Gardener, Cannon-street, Dover.
"	Ferry Hill, Durham—Reconstruction of Billiard Room		Estate Office, Windlestone, Ferry Hill.
"	Hereford—Alterations to Theatre Royal		W. W. Robinson, 10, King-street, Hereford.
"	Ilkley—Hall and Parish Rooms		W. J. Morley, 269, Swan-arcade, Bradford.
"	Hartley Wintney—Jubilee Hall		T. E. Colcutt, 36, Bloomsbury-square, W.C.
"	Kilmorna, Co. Kerry—Creamery	Cork and Kerry Creamery Company, Ltd.	Company's Offices, 15, George's-quay, Cork.
"	Leeds—Excavation in Sunny Bank	General Infirmary	W. H. Thorp, 61, Albion-street, Leeds.
"	London—Pulling Down and Rebuilding Stores	R. T. Jolly	J. W. Dunford, 100c, Queen Victoria-street, E.C.
"	London, N.—Higher Grade Schools	Tottenham School Board	A. M. Butler, 16, Finsbury-circus, E.C.
"	Market Drayton—Fountain		G. A. Craig, Architect, Market Drayton.
"	Mount Vernon—Pulling-down Old Buildings		W. H. Thomas, 15, Lord-street, Liverpool.
"	Nottingham—Brick Garden Walling-in		W. H. Radford, Pelham-chambers, Nottingham.
"	Petersfield—Schools at Sheet	School Board	H. T. Keates, Architect, Petersfield.
"	South Beawell—Alterations, &c.	Edison and Swan United Electric Light Company, Limited	T. Hanning, Northern Assurance-buildings, Collingwood-street, Newcastle-on-Tyne.
"	Thornley—Three Houses, Wheatley-hill		W. Fenwick, The Terrace, Wheatley-hill, Thornley.
"	Seascale—Brickwork of Two Houses		W. J. Postlethwaite, Seascale.
"	Wakefield—Shop Premises in Kirkgate	W. H. Franklin	Gelder and Kitchen, 76, Lowgate, Hull.
"	Wakefield—Two Semi-detached Villas		W. Wrigley, 4 and 6, Westgate, Wakefield.
"	Wimbledon—Roof Tiling		—Hyde, 52, Brayard's-road, Peckham.
ENGINEERING—			
Sept. 4	Bristol—Trench Work, &c.	Waterworks Company	Company's Office, Small-street, Bristol.
" 4	Sheffield—Condenser, Cast-iron Standards, &c., Boiler. (Three Contracts)	United Gaslight Company	F. W. Stevenson, Engineer, Sheffield.
" 5	Tiverton—Reservoir, &c.	Rural District Council	Dymond and Parsons, Bampfylde House, Exeter.
" 6	Ledbury—Reservoir and Water Mains	Urban District Council	J. Garrod, Clerk to Council, Ledbury.
" 6	Winsford, Cheshire—Covered Service Reservoir, &c.	County Council	J. W. Winsford, Cheshire.
" 7	Egton-cum-Newland—Bridge Works	Corporation	Bridgemaster, 19, Brazenose-street, Manchester.
" 8	Hertford—Water Mains, &c.	Police Commissioners	J. H. Jevons, Borough Surveyor, Hertford.
" 8	Perth—Widening Bridge	Metropolitan Asylums Board	R. M. Killop, Borough Surveyor, 12, Tay-street, Perth.
" 9	Stockwell—Steam Main at Hospital	Urban District Council	T. D. Moun, Clerk, Norfolk-street, Strand, W.C.
" 10	Hindley—Pitch Boiler	Waterworks Company	S. Holt, Clerk, Council Offices, Hindley.
" 11	Bristol—Cast-iron Socket Pipes	Caledonian Railway Company	A. J. Alexander, Secretary, Bristol.
" 13	Glasgow—Railways	Freebridge Rural District Council	G. Graham, C.E., Buchanan-street Station.
" 16	King's Lynn—Bridge over River Nar at Castleacre	Lancashire Asylums Board	E. H. Aldham, Clerk, King's Lynn.
" 20	Whittingham, Lancs.—Electrical Plant at Hospital, &c.	County Borough	Simpson and Duckworth, Richmond-chambers, Blackburn.
" 20	West Ham—Electric Light Wiring at Public Library		Clerk, Town Hall, West Ham, E.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—(Continued).			
Sept. 21	Barking, Essex—Electric Lighting	Urban District Council	W. C. C. Hawtayne, Mansion House-chambers, 20, Bucklersbury, E.C.
" 21	Port Elizabeth, Cape Colony—Electric Lighting ...	Town Council... ..	Davis and Soper, 54, St. Mary-axe, London, E.C.
Oct. 7	Hull—Engines and Pumps	Corporation	F. J. Bancroft, Town Hall, Hull.
No date.	Buckingham—Heating Apparatus at Workhouse ...	Guardians	C. Bell, 3, Salters' Hall-court, Cannon-street, London, E.C.
IRON AND STEEL—			
Sept. 4	York—Corrugated Iron Roof	Corporation	A. Creer, Guildhall, York.
" 4	Sheffield—Steel Pipes, Furnace Doors, &c. (2 Contracts)	United Gaslight Company.	F. W. Stevenson, Engineer, Sheffield.
" 6	Cashel, Ireland—Cast Iron Coated Water Pipes ...	Town Commissioners	J. O'Leary, Town Hall, Cashel.
" 7	Neath—Girder Tramrails, &c., and Reconstruction of Tramways (Two Contracts)	Corporation.	D. M. Jenkins, Engineer, Gwyn Hall, Neath.
" 13	Foreland, near Lynton—Lighthouse, Dwellings, &c. ...	Admiralty	C. A. Kent, Trinity House, London, E.C.
" 15	Nelson, Lancs.—Cast Iron Pipes	General Purposes Committee	B. Ball, Borough Engineer and Surveyor.
No date.	Tunbridge Wells—Second-hand Iron Pipe, &c. ... ..	...	W. B. Hughes, Architect, Tunbridge Wells.
PAINTING AND PLUMBING—			
Sept. 3	Kedington, Suffolk—Plumbers' Work to Workhouse Roof.	Risbridge Union Guardians	J. Bigmore, Clerk, 24, Queen-street, Haverhill.
" 4	Kilkenny—Plumbing at District Asylum	Commissioners	Board Office, Custom House, Dublin.
" 8	Ryton—Painting Railings, Station-road	Urban District Council	J. P. Dalton, Surveyor Ryton-on-Tyne.
No date.	Halifax—Painting Fourteen Houses at West Vale ...	...	R. Horsfall and Son, 15, George-street, Halifax.
ROADS—			
Sept. 4	Stockport—Stone and Setts	Rural District Council	H. H. Turner, Union Offices, Stockport.
" 4	Surbiton—Granite	Urban District Council	S. Mather, Victoria-road, Surbiton.
" 6	London—Remetalling of Victoria Embankment ...	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 6	Hebburn—Road Works... ..	Urban District Council	Surveyor's Office, Argyle-street, Hebburn.
" 7	King's Norton, Birmingham—Road Works, Bath Room, &c. (Two Contracts)	Rural District Council	A. W. Cross, 23, Valentine-road, King's Heath.
" 7	Branksome, Dorset—Road Works	Urban District Council	S. Newman, 3, Tennyson-buildings, Ashley-rd., Branksome.
" 7	St. Luke's, London—Street Paving and Miscellaneous Goods	St. Luke's Vestry	Surveying Department, Vestry Hall, City-road, E.C.
" 7	Dewsbury—Street Works	Corporation	H. Dearden, Town Hall.
" 8	Felixstowe—Materials	Urban District Council	Town Hall, Felixstowe.
" 8	Scunthorpe, Lincs.—Granite	Urban District Council	F. C. Hett, Clerk, Trafford-street, Scunthorpe.
" 8	Hertford—Road Works	Corporation	J. H. Jevons, Borough Surveyor, Hertford.
" 8	Ryton-on-Tyne—Calvert and Other Works, Bradley	Urban District Council	J. P. Dalton, Surveyor, Ryton-on-Tyne.
" 10	Guisborough—Street-making	Urban District Council	B. Dunning, Surveyor, Guisborough.
" 11	Ogmore and Garw, Wales—Limestone, &c.	Urban District Council	H. D. Williams, Surveyor, Blackmill.
" 11	Pontycymmer, Wales—Street Works	Urban District Council	H. D. Williams, Surveyor, Blackmill.
" 11	Bromley, Kent—Road-Widening and Retaining Wall ...	Urban District Council	Council's Surveyor, District Council Offices, Bromley, Kent.
" 13	Hornsey, London—Hard Wood Paving, &c.	Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 13	Camberwell—Paving	Vestry	O. S. Browne, Vestry Hall.
" 14	Wealdstone—Road Works	Urban District Council	B. Wyand, Surveyor, Council Offices, Wealdstone.
" 14	Epsom—Road Works	Rural District Council	H. D. S. Wood, 157, Wool Exchange, E.C.
" 15	Clacton, Essex—Paving, &c.	Urban District Council	A. R. Robinson, Surveyor, Town Hall-bldgs., Clacton-on-Sea.
" 15	Bexley—Materials and Pipe Sewer, &c.	Urban District Council	E. K. Boulter, Council Offices, Bexley Heath.
" 15	Camberwell—Tar-paving at Workhouse	Guardians	The Clerk, 29, Peckham-road, S.E.
" 18	Heath Town—Paving, &c.	Urban District Council	R. E. W. Berrington, Civil Engineer, Wolverhampton.
No date.	Andershaw, Lancs.—Flagging	Urban District Council	J. H. Burton, 2, Guide-lane, Hookey Hill.
"	Bexley, Kent—Road on Maypole Estate	District Council	Jennings and Fell, 3, Broad-street-buildings, Liverpool-street, London.
"	Cardiff—Roads, &c., Preswylfa Estate, Canton ... ..	...	J. P. Jones, Richards, and Bugden, 18, Mary-street, Cardiff.
"	Castleford—Paving Yard and Road ... ..	...	Secretary, Co-operative Society, 28, Carlton-st., Castleford.
"	Culter, Aberdeen—Roads ... ..	...	J. A. Beattie, 21, Bridge-street, Aberdeen.
"	East Molesey—Kentish Flints	Urban District Council	Surveyor's Office, Walton-road, East Molesey.
"	Enfield Lock—Making and Sewering Castisfield-road ...	...	Messrs. Crawter, Surveyors, Cheshunt.
"	Farsley—Paving, &c., Springfield Mills	R. Gaunt and Sons	W. D. Gill, Summerville Tee, Stanningley.
"	Leeds—Repaving and Levelling ... ..	...	Mosley, 6, Wormald-row, Leeds.
SANITARY—			
Sept. 4	Bakewell—Sewerage Works, &c.	Rural District Council	Sterling and Swann, Town Hall, Chapel-en-le-Frith.
" 4	Leith—Public Baths	Urban District Council	—Simpson, Town Hall, Leith.
" 4	Surbiton—Drains, &c.	Urban District Council	S. Maher, Council Offices, Victoria-road, Surbiton.
" 6	East Molesey—Sewerage Works, &c.	Urban District Council	Council's Offices, Walton-road, East Molesey.
" 6	London, N.—Barging of Slop and Mixture... ..	St. Mary's Vestry, Islington	Vestry's Depot, Liverpool-road, London, N.
" 7	London, E.C.—Sewerage Works, &c.	Shoreditch Vestry	J. R. Dixon, Surveyor, Old-street, E.C.
" 7	Ashton-under-Lyne—Drainage Works, &c.	District Infirmary	North-Eastern Sanitary Inspection Association, 9, Albert-square, Manchester.
Sept. 8	Grimsby—Sewer	Great Central Railway Company	Resident Engineer, Grimsby Docks.
" 8	Hollingbourne, Kent—Drainage Works	Rural District Council	A. J. Burrows, Surveyor, Ashford.
" 9	Dartford—Stoneware Pipes, &c., in Watercourse ...	Urban District Council	W. Harston, Town Surveyor, High-street, Dartford.
" 10	Whitehaven—Pipe Sewer	Rural District Council	G. Boyd, 33, Queen-street, Whitehaven.
" 11	Bromley, Kent—Sewerage and Surface Drainage Works	Urban District Council	Council's Surveyor, District Council Offices, Bromley, Kent.
" 15	Stretford, Manchester—Drain Tiles	District Council	—Royle, Surveyor, Council Offices, Old Trafford.
" 15	Felixstowe—Sewering	Urban District Council	Town Hall, Felixstowe.
" 21	Shoreditch—Brick and Pipe Sewers	Vestry	J. R. Dixon, Town Hall, Old-street, E.C.
" 28	London—Alterations to Underground	Commissioners of Sewers	Guildhall, E.C.
No date.	Keighley—Drain, &c., at Lane End, Cross Roads ...	...	G. Town, 14, West Devonshire-street, Keighley.
"	South Moor, near Stanley—Sewerage Works	Townley Building Estate	T. C. Nicholson, Architect and Surveyor, Blaydon-on-Tyne.
TIMBER—			
Sept. 13	Dublin—Sleeper Blocks	Great Northern Railway Co., Ireland ...	T. Morrison, Secretary, Amiens-street Terminus, Dublin.
No date.	Fort William, Scotland—Hill Fencing ... ..	...	N. B. Mackenzie, British Linen Bank-buildings, Fort William.
"	Ramsgate—Timber for Gasholder Tank	Gas and Water Committee	W. A. McIntosh Valon, Engineer, Ramsgate.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 10	Matlock—Plans and Surveys for Sewerage Scheme ...	...	Urban District Council.
" 14	Ipswich—Design for Higher Grade School (Local) ...	...	J. H. Hume, Clerk to School Board, Ipswich.
" 22	London, S.W.—Designs for Public Baths	£100, £50, £25... ..	Battersea Vestry, Lavender Hill, S.W.
" 25	Blaenau Ffestiniog, Merioneth—Plans, &c., for County Police Buildings	£15 15s.	Standing Joint Committee.
" 30	Skipton—Designs for Cottage Hospital	£15, £5	Cottage Hospital Committee.
Oct. 1	Lower Bebington, Cheshire—Sewerage Scheme	£50, £35, £20	Urban District Council.
" 1	Ludlow—Electric Lighting Scheme	£20	Corporation.
" 1	Morecambe—Plans, Estimates, &c., for Sewerage Scheme	£100	Urban District Council
" 8	Leeds—Designs for Meat Market and Abattoir	£100, £50, £25... ..	Corporation.
" 13	Dorking—Plans for Infirmary... ..	£15, £5	Guardians of Dorking Union.
Nov. 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c. ...	£500, £300, £200	Corporation.
1896.			
Jan. 1	Newcastle-on-Tyne—Infirmary (Local)	(No First.) £150, £100, £50	Secretary, Building Committee, Newcastle.
" 30	Carlton, Victoria, Australia—Children's Hospital ...	£100, £50, £25... ..	J. Nicholson, Hon. Sec., Pelham-street, Carlton, Australia.
Feb. 28	New York—Model Sun Dial in Plaster	500 dol., 250 dol.	Sec. National Sculp. Soc., 215, West 57th-street, New York.
No date.	Fylde, Lancs.—Workhouse	£150, £100, £50	Union Guardians.
"	London, S.E.—Two Libraries	£25 each	Lewisham Vestry.

DEMOLITION OF OLD BIRMINGHAM.

ANOTHER link in the chain which binds old and new Birmingham together is about to be snapped by the demolition of the extensive block of premises forming the lower part of Cannon Street and Needless Alley, together with the three shops between the two thoroughfares in New Street. This property is one of the most ancient pieces of old Birmingham existing in the centre of the city. The low-roofed, old-fashioned buildings, with the shop fronts brought up to the street line, are in strange contrast with the modern commercial houses on either side; and their replacement by handsome shops, erected on the most modern principles, will be "a conspicuous improvement" to New Street. The property which is now about to be razed to the ground has a frontage to New Street of 66ft., to Needless Alley of 164ft., and to Cannon Street of 144ft. It is cut off from the remaining buildings by a line which preserves the existence of the premises of Messrs. Frank Smith and Wilson, in Cannon Street, and continues through to Needless Alley. This forms an oblong piece of land which generations ago was part of the old Cherry Orchard. In the early days of the eighteenth century two houses stood upon the site. They were built by one William Guest, and in 1729 were in the occupation of William Weeley and Thomas Abell. Attached to them was a close, known as Hipkins's, and there were also four little gardens, two evidently in front, because, according to the old maps and plans, these houses were some little distance removed from the main street. The Clarence Property Company, Limited, proposed to demolish the block, and to erect several imposing shops, together with offices, &c., at a total cost of at least £20,000. It is expected that the new pile of buildings will be completed by the autumn of 1898. One wonders that advantage should not be taken by the authorities to have Cannon Street widened now that the structural alterations are to be carried out, but the Public Works Committee has not interfered in the matter. The building line in Cannon Street and Needless Alley is at present very irregular, and arrangements have been made to make that line as straight as circumstances will permit. In order to do this the Corporation will give up eight yards of land, and the Company will sacrifice eighteen yards. This will be the means of effecting a considerable modification and improvement in the street line, and though it will not extend the width of the roadway it will enlarge the width of the pavement from a few inches to two feet at the narrowest point. The new buildings will be erected in accordance with the plans of Messrs. Essex, Nicoll, and Goodman, Architects, Newhall Street. Provision is made for four shops fronting New Street, to occupy the space of the three original buildings. They will extend to about half the depth of the site—namely, 80ft.; so that, although the shops will be narrower than those now existing, they will be longer and will allow of a greater amount of floor space at the rear. The shops are to include the ground floor, a mezzanine floor, interposed in consequence of the considerable rise of the land up Cannon Street, and first, second, and third stories, the central portion over the two middle shops being continued as an extra story to form an ornamental gable. In Cannon Street there will also be room for four shops about 70ft. in length, and running through to Needless Alley, but so arranged as to be capable of subdivision, and the portions with frontages to Needless Alley let independently if necessary. Over the shops will be built three floors, which, together with the upper stories in New Street, will be let for professional and other offices, and approached from a staircase entrance in Cannon Street. The basements, access to which may also be obtained from Cannon Street, are to be so arranged that they, too, may be let apart from the shops. The general style of the design is a free Renaissance, and the treatment will be of an ornate character.

ABERDEEN WATERWORKS.

THE inspection of the new waterworks for Culter by the Aberdeen District Committee marks the completion of a scheme that provides the village of Culter and the neighbourhood with water and drainage of a very superior description. The pumping station is a building partly formed of concrete and partly of galvanised iron. In it have been placed two vortex turbines of four horse-power each to actuate two 5in. pumps capable of forcing up to the high level tank on Tillyvach Farm 130,000 gallons of water per day. Besides the pumping station proper there is adjoining it on this site a storage cistern capable of holding about 70,000 gallons of spring water. From the high level tank the water gravitates to a service reservoir on the hill at Culter, near Bucklerburn Farm, which is also capable of holding about 70,000 gallons. A screening chamber is provided, fitted with very fine wire gauze; and it may be noted that a ball-cock is placed at the end of the delivery pipe in the Bucklerburn reservoir, so that when the reservoir is full the water does not flow past the screening chamber, in which there is a 3in. pipe for the conveyance of the surplus water direct to the Culter mills for paper-making purposes. The service reservoir is constructed entirely of concrete; that portion which is above ground represents ashlar stone, and the whole is covered with a pavilion roof clad with blue slates. The capacity of this reservoir, 70,000 gallons, is equal to about two and a half days' supply for the population of the Culter district at the rate of twenty-five gallons per day per head. From the service reservoir, which is a conspicuous and pleasing feature on the hillside, the water enters the distributing mains for the supply of those within the special district. The pressure from the reservoir is so great that at two points reducing valves have had to be put in in order to relieve the ordinary service pipes. The drainage scheme consists in laying sewers throughout the district. The sewers are provided with manholes, flush tanks, and ventilation openings, all of modern construction, and the sewage matter is conveyed to the low ground below Culter railway station, and there treated by mechanical precipitation. This reservoir is now completed. It is situated on the margin of several farms near Wester Ord, and covering an area of about eight acres, contains about eight million gallons of water. The result of the works in this connection has been to convert a large portion of utterly waste land into a beautiful sheet of water, which has now become the special feature of that neighbourhood. The scheme has been carried out for the Aberdeen District Committee by Mr. John D. Watson, C.E., county engineer. The various contractors were:—George Mackay and Sons, Stirling, for the main portion of the works; Millar and Son, Annan, for the turbines, pumps, and other apparatus; Donald Cruickshank, Culter, for the Wester Ord reservoir, pipes, &c.; Charles Smith, Culter, for the lade at the pumping station, fences, &c.; Blaikie and Sons, Aberdeen, for a ram to supply one of the farms near the springs with compensation water.

AN arch is to be erected at the entrance to Balmoral Castle to mark the occasion of the Queen's first visit to her Highland home after the Diamond Jubilee celebrations.

At a cost of nearly £17,000 a large house with stables is about to be erected at No. 14, Avenue-road, N.W., according to the designs of Messrs. H. H. and M. E. Collins, Architects, 61, Old Broad Street.

THE well-known and very sombre-looking Roman Catholic Church known as St. Mary's, Moorfields, is needing considerable repair. The vaults are now so weakened by age that they have to be supported by timber props.

A STATUE of the Archangel trampling on the Dragon has been placed on the pinnacle of the Church of Mont St. Michel, Paris. A similar statue existed till the Revolution, when a semaphore signal took its place, but this has long disappeared.

Professional Items.

BRECHIN.—The memorial stone of the new Established Church was laid by Mr. James A. Campbell of Stracathro, M.P., last week. The Church is placed alongside Damacre Road at right angles to St. Ninian's Square, facing which the hall, session-house, and vestry are extended. A massive square tower at their intersection serves at once as a fitting termination to the lower end of the monastic-looking buildings facing the Square, and to the higher and plainer side elevation of the Church to Damacre Road. No attempt has been made to render the buildings rich or ornate. Their scheme is simple and direct, based on the necessities of modern Church work, and they are carried out in the style and with that breadth of fulness of detail which characterise the best of the Scottish Abbeys. The Church consists of a nave 99ft. long by 24ft. wide, seated for 305, and an aisle 72ft. long by 20½ft. wide, seated for 208. At the end of the nave the floor is raised for the Communion table, pulpit, and choir, a stone parapet wall dividing their position from the organ end of the aisle, but beyond a slightly richer treatment of the stonework of the windows and of the woodwork of the roof there is nothing to break the full length of the nave. At the tower end of the Church, and within the walls of the tower, there is a gallery to seat 87, which is reached by the vestibule, which occupies the whole breadth of the aisle, and communicates at once with the open porch, the entrance to which forms the main feature of the St. Ninian's Square front. The hall is 46ft. long by 20½ft. wide, and is seated for 162. The session-house is 21½ft. long by 18ft. wide. The whole buildings are constructed of native grey rubble, with red Corncockle freestone dressings, the stonework of the interior being wholly of red stone. The following are the contractors: Masons—Messrs. R. Aitkenhead and Sons, High Blantyre, Lanarkshire; joiners—Messrs. Herbertson and Sons, Glasgow; plasterer—Mr. J. Gibson, Brechin; slater—Mr. J. Scott, Brechin; plumbers and gasfitters—Messrs. Kinnear and Son, Brechin; and heating and ventilating engineers—Messrs. J. Cormack and Sons, Glasgow. The sculptor for stone carving is Mr. William Vickers, of Glasgow; Messrs. Douglas, Hunter, and Whitson, of Glasgow, are the measurers. Mr. James Kennedy is the visiting clerk of works, and Mr. James Cumming Wynnes is the resident draughtsman and inspector. The Architect is Mr. John James Burnet, of Messrs. J. Burnet and Son, Glasgow.

BRIGG (LINCOLNSHIRE).—The old Angel Hotel, which has stood some centuries, has undergone demolition and rebuilding as shown in our illustration. The new premises comprise commercial and coffee rooms, carriage entrance to the covered courtyard, and buildings in the rear, sitting and bed rooms, with a central balcony on the first floor. The style adopted is half timber work overhanging the ground story. The ceiling timbers are in view, the windows and door panels are glazed with leaded glass, and all the internal fittings are of suitable character, harmonising with the style of the buildings. The work has been carried out by Mr. H. Dent, from the designs and under the superintendence of Messrs. Freeman, Son, and Gaskell, Architects, of Hull.

COLCHESTER.—In our last issue the second premiated design in the Town Hall competition was attributed to Messrs. Lanchester, Stewart, and Rickards; this should, of course, have been Messrs. Brown, May and Rickards.

DENHOLME.—The foundation-stones of a new Wesleyan Sunday school at Denholme were laid a day or two ago. The new school, which will stand on a plot of ground adjoining the chapel, supersedes the building erected in 1836. The new building will, it is estimated, cost about £2200. The school has been designed by Messrs. Judson and Moore, Architects, of Oakworth, and it will agree in architectural style with the adjoining chapel.

The contracts have been let to the following:—Mason's work, Messrs. Sunderland and Greenwood, Lees; joiner's work, Mr. Joseph Hartley, Oakworth; plumbing, Messrs. Bennett, Denholme; plastering, Mr. F. Shaw, Denholme; and slater's work, Mr. Thomas Nelson, Bradford.

DRAUGHTON, NEAR SKIPTON.—The foundation stone of a new Church at Draughton, near Skipton, was formally laid last week by the Duchess of Devonshire. The new Church, which will occupy a site in the centre of the village, is estimated to cost £450, towards which £225 has been paid or promised. The Church has been designed by Mr. B. Emmott, of Addingham, in the Gothic style of Architecture, and will provide accommodation for 100.

DUNDEE.—A meeting in connection with the establishment of an incurables' hospital in Dundee in commemoration of the Queen's long reign was held last week, when it was stated that £43,000 of the £50,000 which they aimed at had been obtained. It was resolved to appoint a committee to look out for a site, and to inquire as to the probable cost.

FELIXSTOWE.—The design by Mr. Brightwen Binyon, of Ipswich, recently selected in competition for laying out about 800ft. frontage of the cliffs and grounds beneath the existing public gardens at Felixstowe, provides for a central building, containing billiard, refreshment, and cloak rooms, over which is a concert hall, or winter garden, 86ft. by 55ft., with reading, smoking, and dining rooms, facing the sea, and opening on to a promenade along the front of the site, under which are arranged beach-houses, that will take the place of the present unsightly bathing-huts. The concert hall is near the new central railway station, now in course of construction, with loop lines of access, by the Great Eastern Railway Company. This hall is lighted principally from the top by a glass pavilion roof, having a promenade round, with a bandstand and wind shelters to the front. The buildings and grounds are entered from the beach in the centre, and also from the cliff gardens. The grounds have been divided into three, and the building is so arranged that it can be carried out in sections:—The first, the centre portion, containing the concert hall and beach huts; the second, the portion to the west of the existing zigzag steps and path, containing the spa and baths, and also a continuation of the promenade; and the third portion consisting of a continuation of the promenade to the east, as far as the end of the site. The design has been arranged with the view to the subsequent building of a pier, starting from the level of the promenade at the centre of the range of buildings, and the grounds are laid out with paths and tennis courts, with summer huts and seats at intervals.

GRIMSBY.—A new and commodious school building is in course of erection in Strand Street. The school is being built on somewhat the same method as the Board Schools, the work being carried out by Mr. Hewins, while the Architect is Mr. F. Skelton.

LEEDS.—Plans have been prepared for the erection of a Nurses' Home to provide accommodation for fifty of the nurses now employed in the Leeds and District General Infirmary, and in the course of a few weeks building operations are to be commenced. The site selected forms a portion of the land recently acquired by the Infirmary Board, known as Sunny Bank, situated on the north-west side of the institution. The recent increase in the staff brought the committee face to face with the question of how the new nurses were to be housed. In the existing home there is only accommodation for about fifty, and as there are now nearly double that number of nurses, temporary provision has had to be made for the remainder in various parts of the institution. With a donation of £5000, Mr. James Stables came to the help of the board a couple of years ago, and now this sum, and maybe a little more, is to be expended on providing for genuine accommodation for all the nurses in

the institution. Another improvement which is being carried out at the infirmary, and one which may in the near future approach completion, is the erection of two new modern operating theatres, with instrument-room, anæsthetic-rooms, recovery-rooms, and all other necessary adjuncts. Between £4000 and £5000 is being spent in this new department. The walls of the operating theatres are lined with opaline.

LLANDUDNO.—A scheme which will assist materially in the development of the eastern portion of the town has just received the sanction of the Board of Trade. This is the construction of a new pier and pavilion opposite Riviere's Concert Hall, in the centre of the bay, at a cost of £50,000. The pier will be 12,000ft. long and 40ft. wide, and the pavilion is to be sufficiently large to provide sitting accommodation for 4000 persons. The work will be commenced about the end of September.

LLANELLY.—At a special meeting of the Llanelly Borough Council, the Surveyor submitted plans and estimates for raising the sea embankment. It was reported that the cost would be £4000. It was decided that the work be done, and that the Local Government

of Idle. The work has been commenced, and is being carried out, from the designs and under the superintendence of Mr. William Bakewell, Architect, Leeds.

NEWPORT.—The directors of the infirmary have just decided as to the tenders for the new hospital. They have selected the lowest tender, which is that by the local firm of Messrs. A. S. Morgan and Company, Godfrey Road, Newport. This firm's tender amounts to £29,950, as against £20,600, the Architect's estimate. It is, however, accepted, subject to certain modifications, which will reduce it considerably. The cost of the new buildings and furnishing will thus, in all probability, exceed the £25,000 which the directors have estimated as the sum needed. The following is a list of the firms who tendered:—A. S. Morgan and Company, Newport, £29,950; T. Westacott, Newport, £29,991 17s.; D. J. Davies and Jones, Newport, £30,097; John Linton, Newport, £30,850; Hy. Parfitt and Dyson, Newport, £31,000; Wm. Bowers and Company, Hereford, £31,940; Samuel Warburton, Manchester, £32,314; W. A. Blackburn, Newport, £32,425; W. Gradwell and Company, Limited, Barrow-in-Furness, £32,572 13s. 5d.; W. A. Linton, Newport,



ANGEL HOTEL, BRIGG. MESSRS. FREEMAN, SON, AND GASKELL, ARCHITECTS.

Board be asked to sanction the borrowing of the money.

LONDON, S.E.—Of a total estimated cost of £10,000, £3000 has already been subscribed towards the Murphy Memorial Hall. The building, which is to seat 1000 persons, will be constructed of red brick, with bands and copings of stone. It will have a frontage in the New Kent Road of 34ft., and a return frontage of 112ft. in Gurney Street. Vestries and class-rooms will be provided to meet the requirements of many societies. To erect the new hall and alter the present hall for school purposes £6000 is required. Other items, making up the estimated total of £10,000, are:—Freehold land, £2550; purchase of present hall, £1000; and furniture and incidental expenses, £450.

MILLBAY.—The pile of buildings erected from designs by Mr. Snell, of Plymouth, in the Millbay Road for the Millbay Laundry, Cleaning, and Dyeing Company, overlooks the Millbay Docks. The whole of the rooms for the conduct of the various branches of the work are designed and built with a view to the carrying on the business of washing and dyeing on the most modern and improved lines.

MORLEY.—The contract for the new premises of the London and Yorkshire Bank at Morley has been let to Messrs. Murgatroyd, builders,

£32,575; W. J. Bloxham, Banbury, £33,660; Chas. H. Reed, Newport, £34,110; Henry Wilcock, Wolverhampton, £34,250.

SCARBOROUGH.—The Buildings Committee of the Corporation has passed plans for erecting in the grounds of the Castle-by-the-sea, hitherto a private residence on one of the highest points of north cliff, a revolving tower similar to one recently constructed at Yarmouth. The tower will be 120ft. high and 15ft. in diameter, and the house will be converted into a café.

SHEFFIELD.—The committee which is making the arrangements with regard to the Duke of Norfolk's statue has received a letter from Mr. Onslow Ford, R.A., accepting the commission. He proposes to make the statue a life-size sitting figure, and it is to be placed on a pedestal which will harmonise in colouring with the other marbles used in the grand staircase of the new Town Hall. The statue is to be placed there; and as at present arranged, it will be situated so as to be readily seen by the public as they enter the building to pay their rates. So far as the position of the statue, and the choice of the materials for its pedestal, are concerned, Mr. Onslow Ford will take Mr. Mountford, the Architect of the building, into consultation, in order that the unity of the Architectural scheme of the building may not be impaired. For the statue itself, Mr. Onslow Ford will be solely responsible.

Enquiry Department.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you kindly inform me whether there is a book dealing with English examples of Gothic Architecture exclusively, and price? While writing to you may I reiterate the wish of some of your correspondents for a Students' Column? I feel sure it would greatly increase the popularity of your splendid journal as well as being a great assistance to your younger contributors.—Yours faithfully,

A. C. R.

There is no really reliable book on English Architecture exclusively. The best is "Ancient Architecture of England," by Carter, and we understand Mr. B. T. Batsford, of 94, High Holborn, has a first-edition copy revised by Britton, half bound in morocco, 1845, with 109 engravings, second hand, which can be purchased for 30s., although published at six guineas. Parker's Glossary is a very useful summary, so is Bloxham's. Ferguson's small book on the Development of Architecture is useful as giving a general idea of the whole. But, speaking broadly, it is no more possible to learn about Architecture from books than it would be to study the Art of painting from line engraving. Architecture is an Art so complex, so dependent on site, situation, and, above all, on material, that no treatise can give any idea of the multiplicity of causes which result in any one effect. The careful study of one building, if carried out with the help of authenticated dates, will teach more about the subject than many books. Take any good building—and no district in England is remote from one—take the best history of the Church you can get—and every county has its archaeological record—and work out the progress of the building for yourself. Study minutely the walling, the mouldings, the methods of building, of working the stone, where the axe was used, where the chisel, the gradual change in style of moulding, of carving, of design, and arrangement in windows and tracing, and in one month you will know more, and have got more pleasure from your knowledge, than from a year's reading. Sketch also, but don't attempt to make pretty drawings. Try and make your drawings look real. Let it suggest the material, the texture, the mode of treatment, the light and shade. Don't be content with putting in a mere line. Draw the masses, the half tones, and the shadows, and in drawing a bit of wall surface with niches, openings, or windows, look on the bit of wall as a variously and cunningly-designed picture, and give not a mere diagram, but a drawing which shall have caught something of the individual spirit, character, life of the building. No two buildings are alike in this respect. Look also for individual methods of work; try and trace a master method in one or more buildings, or parts of the same building. Thus you will realise fully that Architecture was a living thing, the expression of a form of collective vitality, social energy, which has now quite disappeared. These same remarks apply generally to all books on Renaissance Architecture. The same methods of study should be employed. Careful attention should be given to the grafting of classic forms on a Gothic stock, noting the gradual absorption of the stock by the graft until we get a completely classic style—classic in its outline and form, still Gothic in spirit and manipulation. The real classic work dates from Inigo Jones, and Mr. W. L. Loftus's book on him is most useful. Mr. Gotch's admirable and careful book will give an idea of the earlier Renaissance, and no doubt help to form the power of discrimination; but only buildings can teach what is really worth knowing.—Ed.

[The replies to "G. H. B." and "I. R. F. Jun.," will be given in our next issue.]

THE Mersey Dock Board has resolved to spend £86,700 in deepening and improving the north docks, in accordance with the scheme which has been in operation some years,

SOCIETY MEETINGS.

Bradford Antiquarian Society.—On Saturday week the members of the Bradford Historical and Antiquarian Society visited Levens Hall, in Westmoreland. Levens Hall, a fine example of the Elizabethan type of manor house, was described and illustrated in a recent issue in connection with the A.A. Tour in Lancashire.

Newcastle Society of Antiquaries.—The monthly meeting of the Society of Antiquaries of Newcastle-upon-Tyne was held under the chairmanship of the Rev. Dr. Greenwell.—Mr. W. H. Knowles said that in some notes which he read before the Society in November last, on the 13th Century ruin in Armstrong Park—King John's Palace, once the residence of Adam of Jesmond—he suggested certain measures to arrest its further destruction. These were communicated to the City Council, who desired him to attend a Park Committee meeting and obtain an estimate of the cost of the necessary work. He now begged to report that the Council had adopted both suggestions and estimate. He moved that the thanks of the members of the Society, and of all lovers of history and antiquities, were due to the Council for their considerate action.—This was agreed to.—A letter was read from the Chairman of the Lit. and Phil. Society thanking the Society of Antiquaries, on behalf of his committee, for so kindly throwing open the Old Castle and Black Gate Museum to the American librarians on their recent visit to Newcastle.—The Secretary reported that Mr. John Ventress had presented to their Society a plaster cast from the bronze plate of marks of the members of the Goldsmiths' Company.—Mr. Maberly Phillips, F. S. A., read a paper on "An unreported Saxon Stone at Nunykirk, in the grounds of William Orde, Esq." The stone, he said, was the shaft of a Saxon cross. Its base was said to be about ten inches in the ground. From the base to the first moulding it measured 2ft. 11in. All its four sides were beautifully carved, the whole drawn in a very bold and skilful manner. When complete the whole cross would stand about 6ft. to 6ft. 6in., and was most probably a memorial cross erected in honour of some distinguished personage. The whole face was entirely covered with a vine scroll, the stem worked into two small panels, the centre of each being a leaf or bunch of fruit.—Canon Greenwell considered the stone to be a beautiful example of early Saxon work, and suggested the date as the eighth century, or possibly the seventh.

Devon and Exeter Architectural Society.—By permission of the Earl of Mount-Edgumbe the members of the Plymouth, Devonport and Stonehouse branch of this Society visited Cofthele House on Saturday week. The house, which is surrounded by woods, exhibits a proud and all but unique monument of feudal times. The entrance is through a Gothic arch into a quadrangular court surrounded by buildings of granite. The ancient hall retains all the characteristic appendages of knightly dignity, the walls are hung with coats of mail, shields, helmets, spears, guns, swords and gauntlets. The windows are of stained glass with coats of arms thereon. Beyond the dining room is the chapel wherein the family were accustomed to perform their devotions separated from the domestics and vassals by an open screen. The staircase is adorned with old family portraits. The state bedroom and other rooms are hung with very fine tapestry, and the furniture is as it was when the mansion was first built in the reign of Henry VII. Charles I. slept here in 1644, and his son the Prince of Wales in 1645. George III. visited the mansion in 1789, and Queen Charlotte breakfasted there with the Earl and Countess of Mount-Edgumbe, and in 1846 it was visited by Queen Victoria and Prince Consort.

No pains have been spared to make the book on St. Mary's, Oxford, by Mr. T. G. Jackson, R.A., a sumptuous example of combined printing, binding, and illustration. The work has been in hand for years. Mr. Frowde, of the Clarendon Press, is the publisher.

Trade and Craft.

EDINBURGH MASONS' STRIKE.

The dispute between the Edinburgh and Leith master masons and their operatives regarding an eight hours day and other matters, which has been agitating the building trade in Scotland for some time, came to an abrupt and unexpected termination, when at a meeting of the employers it was decided to agree to the terms of the men's letter asking an eight hour day, to commence on 15th February next. It was also agreed to allow the men to return to their work at once on these terms. This decision appears to have been the outcome of the meeting of the Building Trades' Federation, which was held in Glasgow on the same afternoon. It may be remembered that at a meeting of the master builders held on the previous Tuesday the question of a lock-out all over Scotland was considered; but the proceedings were adjourned for the purpose of securing the adhesion of several large firms which were not then represented.

LEEDS ELECTRIC LIGHTING.

The Yorkshire House-to-House Electricity Company is making extensive preparations to meet the demands for current expected during the coming winter. The new buildings are now rapidly approaching completion, and the additional generating plant, consisting of four new Lancashire boilers and four combined engines and dynamos, each of 500 indicated horse-power, have been obtained. The Company now directs attention to modifications in the system of distribution, which has been approved by the Board of Trade, and which are being carried into effect at a large expense. It is stated that not less than £10,000 is being spent this year in improving the means of distribution in a part of the centre of the city, and the new system will be extended to other central thoroughfares as quickly as circumstances permit. It may be explained that hitherto all the Company's cables have conveyed electric current at high pressure, and the conversion to low pressure is done by a separate transformer on the premises of each consumer. Under the new system transforming sub-stations are constructed at various points in the centre of the city, at which the conversion of the current from high to low pressure will be effected by means of large transformers to be there installed. Up to the present four of these underground structures have been built, two in Albion Street and two in Briggate.

A RECORD GRAND STAND.

The largest football stand in the country has just been erected for the Everton Football Club, from the designs of Mr. Henry Woodhouse. The stand is nearly 500ft. long and will accommodate 6000 people. The timber work and concreting has been carried out by Messrs. Roberts and Robinson, Ltd. of Liverpool, and the steel framework and galvanised roof covering by Messrs. E. F. Blakeley and Co., Vauxhall Works, Banastre Street, Liverpool. The uprights and girders for carrying flooring are of H section steel and the principals and purlins of the usual tee angle and flat construction.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BLACKPOOL.—For the construction of the Alhambra Theatre of Varieties, circus, ballroom, restaurant, &c., at the Alhambra (Blackpool), Limited. Messrs. Wyllon & Long, Architects, 16, King William-street, Strand, London. Quantities by Messrs. Woodward and Argent, London.

General Furnishings, Decoration, &c.
E. Gabbutt ... £91,034 Peters and Sons ... £77,94
Parnell and Sons ... 87,475 S. and J. Whitehead ...
Kirk and Kirk ... 83,700 Blackpool* ... 76,2
Cardwell Bros. ... 80,726

Iron Construction.
Widnes Foundry Co. £13,755 Samuel Butler, ... £12,7
Heenan and Froud ... 13,495 Leeds* ...

Seating and Upholstery.
J. Shoolbred and Son, London ... £6,500
*Accepted.

[Architects' estimate of building completed and furnished as set forth in prospectus was £100,000.]

CARNKIE.—For the erection of mixed school and additions to existing premises at Carnkie, for the Illogan School Board. Mr. Sampson Hill, Architect, Redruth:—
Carpentry, and £75 for furniture.—John Roberts ... £531 18
Masonry.—Thos. Turner ... 587 10
Whole, and £100 for furniture.—White and Thomas ... 1,041 0
Whole, and £67 10s. for furniture.—E. Pooley ... 1,028 0
Whole, and £60 for furniture.—John Berryman, Troon, Canborne (accepted). ... 953 0
DEVONPORT.—For taking down and rebuilding front of 19, Tamar-terrace, for Dr. W. Cheyne Wilson. Mr. H. G. Luff, Architect, 64, Chapel-street, Devonport:—
T. Jenkin and Son. ... £398 W. J. Oliver ... £357
H. Pile. ... 390 W. Littleton (accepted) 259
J. Healy and Son. ... 380 [All of Devonport.]

ELGIN.—For additions, &c., to farm steading, Burgie Lodge Farm, and dwelling-house, Bognie Farm, for the trustees of the late R. Fullo, of Burgie. Mr. C. C. Doig, Architect, Elgin:—
Burgie Lodge Farm.
Building.—Thos. Miller, Colfield, Alves ... £56 13 0
Carpentry.—MacKiligan and Grigor, Elgin ... 303 11 0
Slating.—George Ogilvie, Elgin ... 88 18 0
Plumbing.—William Munro, Forbes ... 37 10 6
Bognie Farm House.
Building.—Thomas Miller, Colfield, Alves ... 37 18 0
Carpentry.—Wm. Ritchie and Son, Lossiemouth ... 77 7 0
Slating.—James Wilson, Elgin ... 23 10 0
Plumbing.—William Munro, Forbes ... 6 3 2
Painting.—Alex. Forsyth, Elgin ... 3 3 0

DUFFTOWN (N.B.).—For the erection of offices, Mortlach Distillery, for Messrs. Geo. Cowie and Son, Mortlach Distillery, Dufftown. Mr. C. C. Doig, Architect, Elgin:—
Building.—John Mackenzie, Dufftown ... £217 0 0
Carpentry.—Morrison and MacCombie, Dufftown ... 205 0 0
Slating.—John Wilson, Dufftown ... 25 15 0
Plumbing.—William Munro, Elgin ... 81 0 0
Painting.—Garden and Ward, Dufftown ... 19 17 6
FOWEY.—Accepted for the erection of a terrace of nine houses at Fowey, for Mr. W. Gundry. Mr. Sampson Hill, Architect, Redruth:—
N. Penter, Polruan ... £4,550
KING'S LYNN.—For building a new chemical laboratory at the Borough Technical School, London-road, for the Corporation. Mr. E. J. Silcock, Borough Surveyor, King's Lynn:—
Spragg and Son. ... £436 14 0 R. W. Fayer ... £404 13 3
Medwell and Foreman. ... 429 0 0 W. F. Smith ... 382 11 0
J. J. Bone. ... 410 0 0 C. Alfatt* ... 378 0 0
 [All of King's Lynn.] *Accepted.

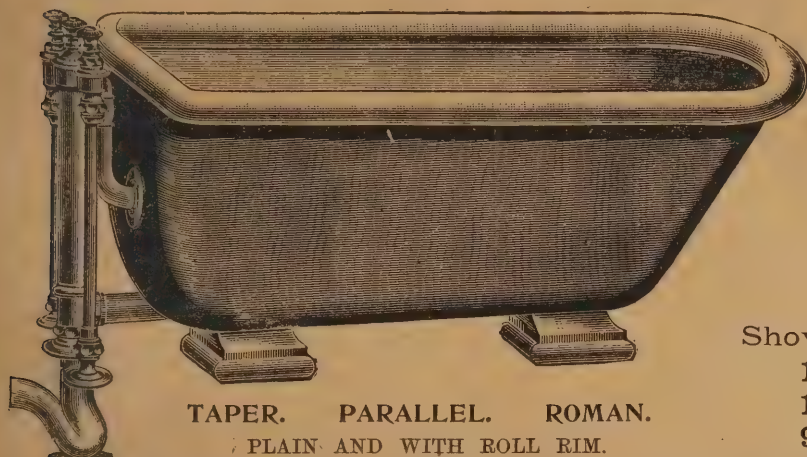
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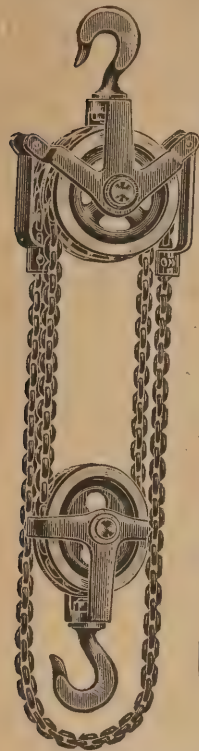


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LEYTONSTONE.—For erecting four shops, Leytonstone:—

Todd £3,673 | Scott £3,487

Snewin Bros. and Co. 3,580

LONDON.—For building stables and Coach-house, Glynroad, Clapton. Mr. A. J. England, Architect:—

Saunders £210 | Snewin Bros. and Co. £195

LONDON.—For erecting the "Old Crown," Highgate.

M. C. G. Pye, Architect:—

Perkins and Co. £5,189 | Mitchell £4,884

Snewin Bros. and Co. 5,139 | Coomber 4,723

LONDON.—For building house and shop, 168, Dalston-lane, N.E., for Mr. H. C. Capel. Mr. John Hamilton, Architect:—

Snewin Bros. and Co. £492

LONDON.—For alterations to "Crown" public-house, Picton-street, Camberwell, for Mr. J. T. Johnson. Mr. John Hamilton, Architect:—

Edwards and Medway £249 | Jarvis £238

Whitehead 235 | Snewin Bros. and Co.* 194

LONDON.—For pulling down and rebuilding the "White Hart," Shoreditch. Mr. G. G. Pye, Architect:—

Webkin and Son £754 | Perkins and Co. £647

Snewin Bros. and Co. 658 | Coomber 510

LONDON.—For building new dairy, cow-sheds, stables, &c., Wood Green, N. Messrs. Gordon, Lowther, and Gunton, Architects:—

Johnson £2,797 | Tennant £2,325

James 2,750 | Knapp 1,981

Snewin Bros. and Co. 2,691 | Emery 1,971

Richardson 2,645

LONDON.—For the erection of block of flats, Liverpool-road, Islington:—

Chessum and Son £14,595 | Welsh £10,000

E. Houghton and Son 14,427

LONDON.—For the erection of residence, Stanhope-road, Crouch End. Mr. J. Gordon Stanham, Architect:—

E. Houghton and Son £2,574 | Appleby £2,450

McCormick 2,535

LONDON.—For exterior painting of Droop-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

F. Chidley £106 19 | W. Brown £79 15

C. Gurly 104 0 | Marchant and Hirst 79 10

T. Cruwys 99 10 | F. T. Chinchin* 68 0

W. B. and A. Hide 86 15 | E. T. Folley 47 0

LONDON.—For exterior painting of Roman-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

A. W. Derby £400 | J. T. Robey £235

Gibb and Co. 245 | S. H. Corfield* 225

A. E. Symes 241

MIDDLETON ST. GEORGE (Durham).—For the erection of a private asylum (contract for foundations). Mr. J. W. Dyson, Architect, 67, Grey-street, Newcastle-on-Tyne.

Quantities by the Architect:—

Thomas Dickinson £1,472 0 | Geo. Marshall and Son £1,230 0

Jos. Howe and Co. 1,280 0 | John Geo. Gradon, Durham* 1,070 10

John Davison 1,278 10

Chris. Groves 1,252 4

NANPEAN (Cornwall).—Accepted for the erection of school at Nanpean, for the St. Stephens-in-Branwell School Board. Mr. Sampson Hill, Architect, Redruth:—

Gilberts and Richards, St. Stephens £1,090

NEWCASTLE-ON-TYNE.—For erecting the Victoria Library. Mr. John W. Dyson, Architect, Newcastle.

Quantities by the Architect:—

W. C. Tyrie £5,542 4 0 | Alex. Pringle £4,499 16 0

Walter Scott 4,984 1 6 | Middlemiss Bros. 4,450 0 0

Thos. Weatheritt 4,728 13 3 | J. and W. Lowry, Newcastle* 4,446 0 0

G. H. Mauchlen 4,674 17 0

* Amended and accepted.

NEWPORT (Mon.).—For the erection of the Newport and Monmouthshire Hospital:—

H. Wilcock £34,230 0 0 | H. Parfitt and C. H. Reed 31,900 0 0

W. J. Bloxham 33,660 0 0 | J. Linton 30,850 0 0

W. A. Linton 32,575 0 0 | D. J. Davis and W. Gradwell & Co., Ltd. 30,097 0 0

W. A. Blackburn 32,425 0 0 | A. S. Morgan & S. Warburton 29,991 17 0

W. Bowers & Co. 31,940 0 0 | Mon.* 29,950 0 0

* Accepted—subject to modifications.

NEWPORT (Mon.).—For the erection of an institute, swimming-bath, &c., at Abertillery. Mr. F. R. Bates, Architect, 4, Commercial-street, Newport, Mon.:—

F. C. Morgan £4,150 0 0 | G. Turner & Sons £3,236 6 1

J. Bayley 3,988 11 4 | Gaen Bros. 3,757 0 0

J. Monks and Co. 3,984 0 0 | D. J. Davies, Mon.* 3,610 0 0

A. P. Williams 3,968 0 0 | * Accepted.

NEWPORT (Mon.).—Accepted for alterations and additions to "Brynderiven," for Mr. R. Searle. Mr. F. R. Bates, Architect, Newport:—

Jerrett and Fisher £520

NEWPORT (Mon.).—For rebuilding No. 85, Stow Hill, Newport. Mr. R. F. Bates, Architect, Newport:—

J. Monks and Co. £1,178 | D. Parfitt £1,038

D. J. Davies 1,099 | W. A. Linton, Newport* 1,025

C. H. Reed 1,071 | * Accepted.

NEWPORT (Mon.).—For alterations and additions to "Woolmer," for Mr. H. Le Brasseur. Mr. F. R. Bates, Architect, Newport:—

A. S. Morgan & Co. £315 0 | C. West £275 0

John Linton 315 0 | C. Westacott 274 0

Jerrett and Fisher 310 0 | J. Jenkins 273 10

W. M. Blackburn 310 0 | * Accepted.

[All of Newport, Mon.]

NEWPORT (Mon.).—For laying main sewer and branch drains and constructing new road, on the Rogret Glebe Estate, Newport, for the Rev. A. G. Morris. Mr. F. R. Bates, Architect to the estate:—

A. S. Morgan and Co., accepted on a schedule.

NEWPORT (Mon.).—For the erection of a new Parish Church at Crinden, Newport, Mon. Messrs. Wm. Graham, Hitchcox, and Company, Architects, Newport, Mon.:—

J. T. Morris £8,169 | D. W. Richards £6,921

E. Walters 7,397 | T. Westacott 6,850

C. Lock 7,280 | J. Davies 6,757

J. Linton 7,209 | A. S. Morgan 6,700

J. Charles 7,185 | D. Parfitt 6,670

C. H. Reed 7,134 | D. J. Davies* 6,670

A. Hazel 6,989 | E. C. Jordan 6,447

W. Jewell 6,979

W. A. Linton 6,969 | * Accepted.

PERRANPORTH (Cornwall).—Accepted for the erection of four houses, for Captain W. Roberts. Mr. Sampson Hill, Architect, Green-lane, Redruth:—

John Odgers, Redruth £3,900

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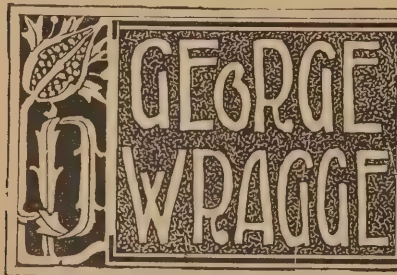
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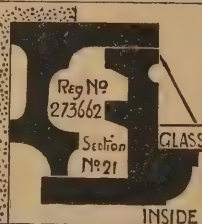
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Plumbing and Glazing.—J. R. Crossland, Lowerhead-row, Leeds 200 0
Plastering and Concreting.—A. Firth, Henshaw, near Yeasdon 147 0
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Painting.—W. E. Smith, Elford-grove, Leeds 42 0

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Painting.—J. Heslop, Spennymoor* 30 10 0
Glazing.—J. Heslop, Spennymoor* 76 14 0
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Painting.—J. Morgan 23 10 0
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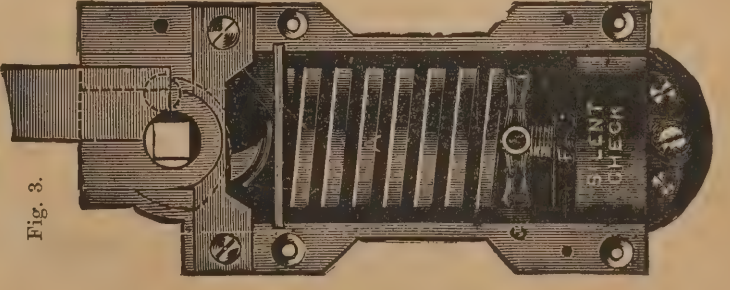
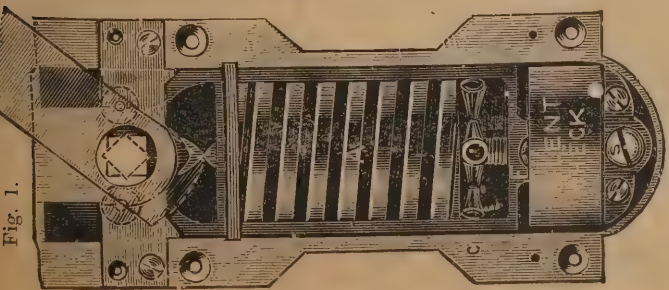
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W. J. H. DENSELOW,

Clerk to the Vestry.

Town Hall, Walham Green, S.W.

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Personal canvassing will be considered to be a disqualification. Age not to be under 30, and not to exceed 40.

Applications to be addressed to me, endorsed "Borough Engineer and Surveyor," and accompanied by copies of testimonials, not exceeding three in number, which will not be returned, to be sent to the Borough Offices, Ryde, not later than SEPTEMBER 4th.

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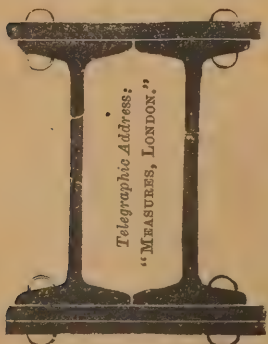
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Art and the Wise Men of Dover.

THE ways of Corporations, and especially when they deal with any question however remotely bearing upon Art, are past finding out. Their sayings and doings in this respect would provide a series of most enjoyable comedies, which would well engage Mr. Pinero's attention to interpret for us. The latest and richest example comes from Dover, and relates to the Corporation's treatment of the question of the broken stained glass windows in the main hall of the Maison Dieu. Everyone has heard about this treatment; it has, strange to say, even attracted the attention of political journals, who have not, however, as usual, grasped the real merits of it, or even done justice to another opportunity wherein the indifference of the public to such things, as shown by their representatives, is so exemplified. It needs the brilliant satire of a Whistler to illustrate it thoroughly in words, but we are thankful, nevertheless, to the "Hull Daily Mail," which, in a most excellent leader, ridicules the whole business in a way seldom seen outside artistic Journals. It compels us to pause and pay tribute to an attitude at once so sympathetic and so right. But here is this choice and latest flower from the garden of municipal wisdom:—"An extraordinary incident occurred at Dover Town Council on Wednesday, which illustrates the indifference displayed by some people towards historic memorials. The large stained glass window in the main hall of the Maison Dieu, depicting the embarkation of Henry VIII. for Calais, has recently been broken, and an estimate for its repair was submitted to the Council.—Councillor George Mowll asked whether some "litho-glass," or something like it, would not do to cover the breakage.—Alderman Adcock: Why not suggest that the holes be stuffed up with old rags? I propose the repairs be done.—Councillor Chitty, in seconding, said he thought that when they had such valuable windows they ought to take care of them.—Councillor Ayres: I propose that the matter stand over till the holes are bigger. Eventually this amendment was declared carried.—Daily Paper." We think our readers will agree that the amendment eventually declared carried is matchless as a piece of barbarism towards Art in this or any other country. At least we hope it is matchless. We cannot imagine anything much worse than Councillor Ayres and his sweet advice, "Wait till the holes grow bigger." In truth, on first reading it, we thought the "Hull Daily Mail" was publishing a small burlesque in one act, with gifted Councillor Ayres—immortal Councillor Ayres!—as principal actor. But no, it is stern fact, and Councillor Ayres, we find on enquiry, is very real indeed, and proves himself the uncrowned King of the Philistines with Councillor George Mowll as Prime Minister. These two worthy corporators are representatives — of this unfortunately there can be no doubt — of a greater part of the British public in its feeling towards things artistic. It does not matter whether or no the windows are good or bad Art, these civic busybodies know nothing of such things, and care less. Whether they are dealing with the worst specimen of modern decoration, or the most precious relic of mediæval art, their ways are just the same. They would mutilate the

most sacred things in Art to pose as saving the public purse, or to win the slightest sound of popular applause. That is their end and aim, or, to put it in a more literal way, they want to keep their seats; and from what we have seen of such things, we regret to think they will. It is just the sort of thing to "fetch" the ratepayers. All this, of course, is very disheartening to artists. We are told by sympathetic and art-loving friends, who possess an endearing, lovable sort of optimism, that these things will be righted with the spread of so-called "education." With all respect we think it never will. This age is not an age of Art at all. It is one of steam and electricity and commercialism, and when such things are prominent and living, Art must ever exist in the midst of it, content to be maimed and mutilated, cheered only by the faith of the few artists, and in the patient hope of better things.

The Colchester Competition. Mr. Norman Shaw's Adjudication.

WE publish this week descriptive notes of a competition that possesses, for more reasons than one, a greater interest than perhaps the actual importance of the building would lead us to expect. It was to all intents and purposes a limited competition between six prominent architects, with a novel condition admitting any local men, that was taken advantage of by two firms, one of which unquestionably secured the wooden spoon, while

the other, according to the assessor's report, ran the first premiated design very close, a result that was probably somewhat of a surprise to the Londoners, but which is obviously justified by the excellence of the design. A further interest is imparted by the fact that the adjudication was made by Mr. Norman Shaw, whom we should wish to see far oftener in this rôle, for which his wide knowledge and exceptional abilities render him peculiarly well fitted. We but seldom venture on the thorny paths of criticism with regard to the remarks of our contemporaries, but we feel impelled to make an exception to this course when we read such a furious onslaught as appeared in The Builder on the judgment of an architect who is universally regarded as the doyen of the Profession, and as to whose genius and skill in both the artistic and scientific sides of his Profession there can be no two opinions. As we have made a particularly careful study of the designs submitted in this competition, we happen to be fairly well qualified to give an opinion on the justice or otherwise of this vigorous attack on Mr. Norman Shaw's capacity as an assessor. It is happily beyond our intentions, possibly beyond our skill, to display the powers of invective exhibited in the paragraphs to which we refer, and in view of the fact that full notes on the premiated designs appear on another page, it will be the simpler course to leave our readers to judge for themselves as to the ground that any offer for strictures such as our contemporary indulges in, and we do not imagine for a moment



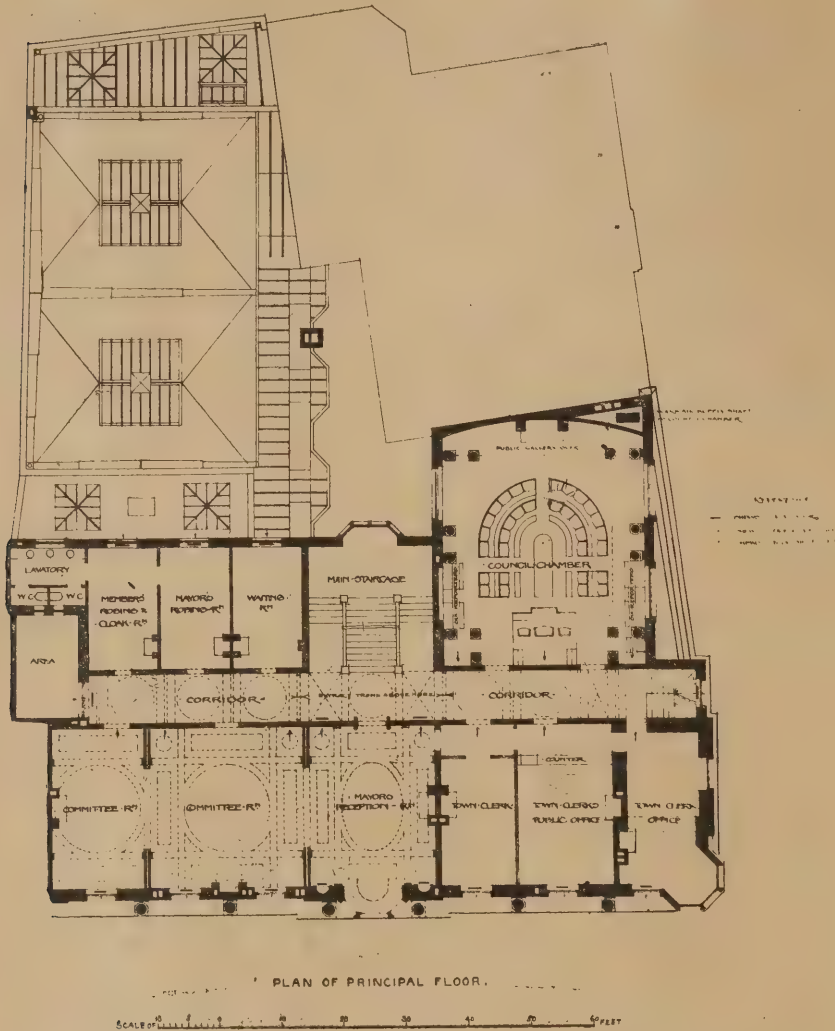
COLCHESTER TOWN HALL COMPETITION. A REMINISCENCE OF MR. A. B. PITE'S DESIGN.

that anyone who lays claim to any pretension to be a critic of architecture will endorse The Builder's opinion that certain designs have been unjustly ousted from the premiated positions. The public will, we predict, unhesitatingly endorse Mr. Norman Shaw's award, and not that of the author of "Architecture for General Readers." These remarks would be greatly misunderstood if it is thought for a moment that we desire to stifle fair and honest criticism, but we do feel that in this case the study that has evidently been given to the

tingly stating our disagreement with our contemporary's views in this particular case, we feel it a pleasure to be able to express even a qualified approbation of the final suggestion—that competitions should be decided by a representative jury of architects, and not by a single assessor. There certainly are cases in which such a course would be desirable, particularly those in which the practical convenience in planning buildings requiring special technical knowledge has to be weighed against the necessity of securing that the architectural character shall

BIRMINGHAM MUNICIPAL SCHOOL OF ART.

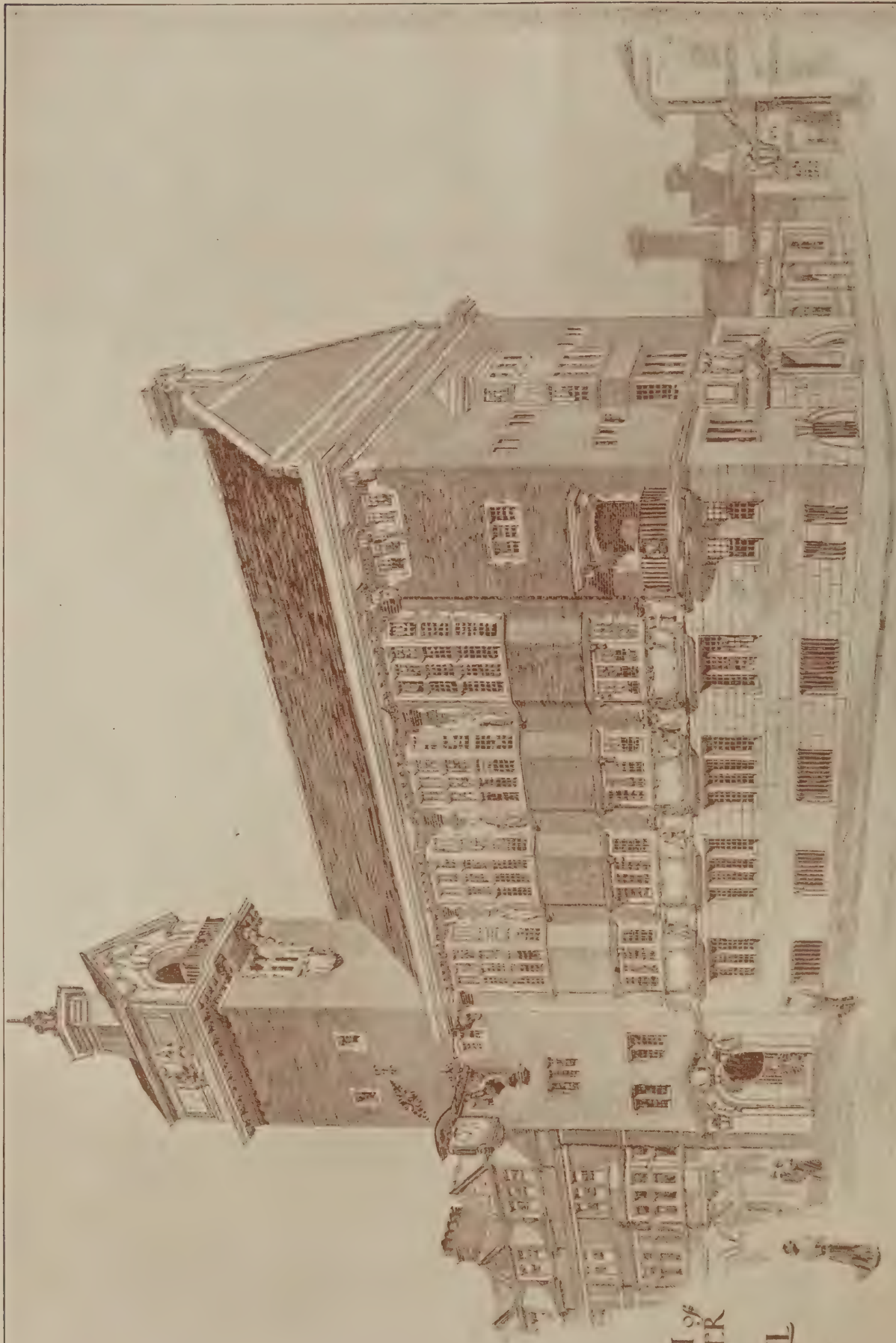
THE Museum and School of Art Committee has issued the programme for the coming season, and also the list of awards made to the students by the Government Department of Science and Art on the results of this year's examinations. The session at the central and branch schools will begin on Monday, September 13th, and the central school is this week open to public inspection from 11 a.m. to 9 p.m. daily. Morning, afternoon, and evening classes will meet there on five days a week throughout the session. In order to meet the convenience of young students whose parents may wish them to attend day classes at the school, either before accepting situations or during their first year or two in the factories or workshops, the committee has arranged for students under sixteen years of age to be admitted to the complete school course at a fee of £3 for the school year, payable in two instalments of 30s. a term. The classes in architectural history and design and in building construction have been re-arranged. Mr. W. H. Bidlake, M.A., A.R.I.B.A., whose students have hitherto been most successful at the examinations and competitions of the Government Department of Science and Art, and of the Royal Institute of British Architects, will continue to teach architectural history and architectural design. Mr. Herbert T. Buckland has been appointed to assist him, on two evenings a week, with the class in architectural design (elementary stage); Mr. Alfred J. Dunn, A.R.I.B.A., "Pugin" scholar and "honours" candidate in building construction, will teach the last-mentioned subject on Mondays and Fridays, from 7.15 to 9.15 p.m.; whilst Mr. Freeman Smith will lecture on Architecture on Monday afternoons and evenings, and on practical plane and solid geometry on Tuesday evenings. Syllabuses of all the lectures are given in the programme. It is the practice of the committee to afford to the masters leisure to proceed with their own painting and other work, and many of them have achieved reputations which are by no means local. Apart from the head master (Mr. E. R. Taylor), whose reputation as an Art teacher is world-wide, Mr. Jackson, the second master, has published "Lessons on Decorative Design" and "The Theory and Practice of Design"—text-books recognised throughout Great Britain; Mr. Creswick, the teacher of modelled design, executed the well-known frieze on the Cutlers' Hall in Fetter Lane, London, and for two years studied at Coniston under Mr. Ruskin; Mr. Harper and Mr. Jelley, the masters respectively of the life and painting classes, have long been known as exhibitors at the Royal Academy; and Mr. Gaskin and Mr. Gere, teachers of designing in black and white and kindred subjects, are, in addition to Sir Edward Burne-Jones, the only artists whom the late William Morris invited to illustrate his famous reprints. The prize list and certain conditions as to the award of free admissions and scholarships have been revised. Messrs. Taylor and Whitfield (Limited) offer a prize for design for furniture, and Councillor William Davis one for design for chasing. A new branch school will be held at the Board School (Montgomery Street), Sparkbrook, Mr. Bernard Sleigh, designer and illustrator, has been appointed master, and Mr. William Haywood, gold medallist, assistant master. Branch classes will also be held, on five evenings a week, at the Board Schools in Clark Street, Ladywood; Cowper Street, Newtown Row; Dudley Road; Ellen Street, Brookfields; High Street, Harborne; Highfield Road, Saltley; Hope Street, Jenkins Street, Small Heath; Lingard Street, Bloomsbury; Moseley Road, Highgate Park; Smith Street, Hockley; Tindal Street, Ballsall Heath; and at the special building in Victoria Street, mainly intended for students engaged in the jewellery or allied trades. In the national competition of all the Schools of Art in the United Kingdom, the Birmingham school has, for the seventh successive year, obtained more awards than any other provincial school, and received, for the first time in the history of the school, as many as three gold medals.



awards renders absurd and immodest a criticism based on such an obviously cursory examination of the designs. As a matter of fact, any difficulty in making the award must evidently have been rather in the relative positions of the first three than in the placing of the remainder, none of which approach the premiated designs in simplicity and convenience of plan. The criticism to which we have devoted this brief notice is of a violence so little justified by the circumstances of the case that the casual reader might well be excused if he imagined that there was something prompting it beyond what met the eye. There is happily, of course, not the slightest suspicion or ground for suggesting any such thing, and we cannot but believe that the author fondly imagined that he was not exceeding the bounds of fair and reasonable criticism. However, we can only repeat that, under the circumstances, he would have better studied his own reputation by giving some consideration to the question before pronouncing, *ex cathedra*, his, to say the least of them, somewhat crude opinions. After having cleared our consciences by unhesita-

be, not of the first rank (that is beyond hoping for in a competition), but not altogether contemptible. One of the assessor's greatest difficulties lies in the fact that some, at all events, of the promoters of a competition are sure to be fairly keen critics on practical questions, while it is unlikely that any have an accurate judgment in Architecture; he, consequently, may feel it his duty to adjudicate from their point of view, and to attach the very slightest importance to the artistic ability displayed. While such a course may possibly meet with the approval of the general public, it is at any rate an open question whether it is not a mistaken one; at all events, it is calculated to produce a feeling of depression when one sees, as one so frequently does, an assessor of great abilities giving the palm to a cleverly planned design, but one possessing not an atom of architectural interest. We doubt whether a committee would be more satisfactory in this respect; the fault is less with the individual architect than with the attitude of the nation as a whole.

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BOROUGH of
COLCHESTER
NEW
TOWN HALL
View from
High Street

COLCHESTER TOWN HALL COMPETITION. SECOND-PREMIATED DESIGN BY MESSRS. BAKER, MAY AND RICKARDS.



COLCHESTER TOWN HALL COMPETITION. FIRST PREMIATED DESIGN BY MR. J. BELCHER, F.R.I.B.A.

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BY OUR SPECIAL REPRESENTATIVE.

By comparing Mr. Mountford's plans with the others published, a good chance for treatment is offered by the main proportions of the façade, but little has been attempted, however, and that the tower succeeds in utterly swamping by its comparatively large scale. This effect is enhanced by the style in which the perspective is rendered. It gives the effect of mouldings and other features of the coarsest description which in execution would utterly wreck a design on such severe lines. The placing of these three designs must have been a matter of some difficulty, and, with Mr. Mountford's clever plan, the assessor may well have hesitated.



From the remaining five sets of designs Mr. Pite's stands right out by reason of his large treatment of the exterior. Though evidently a hurried performance (and to this reason must be attributed the obvious weakness of the details of the scheme), it is one of his most striking works, artistically. "The front, which is a reminiscence of Peterborough Cathedral in Renaissance garb, has a low tower at each end connected by three lofty arches, the main wall of the building being set back some 10ft. or 12ft. The sketch, on page 89, may give an idea of Mr. Pite's suggestion for a commemoration of the Jubilee. It must be said that the other competitors show a lack of loyalty in disregarding this portion of the conditions. It may be taken as the keynote of this design, and any sculptor might be proud to have such a setting for his work. The tower is most cleverly completed with a crown shape, and one is amazed at the cleverness of the drawing of this portion in the perspective, which, by the way, is all suggestion. But here I must qualify my praises, for, on examining the drawing more closely, the tower which at

evoked a considerable effort on the part of half a dozen lights of the Profession to solve a by no means easy problem even as competitions go, from an artistic point of view, with results above the average. In face of certain rumours that have been abroad, and in justice to these gentlemen, it is to be hoped the Corporation will see its way to carrying out the scheme in its entirety.

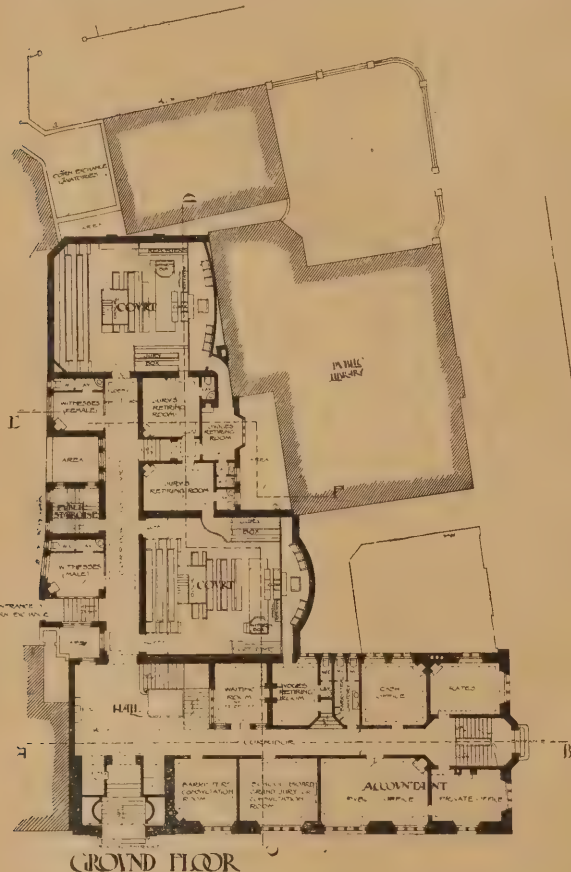
THE STOCKHOLM EXHIBITION.

THE Exhibition of the Arts and Industries of the Scandinavian Kingdoms and of Russia which is now being held at Stockholm, and which will continue open until October, is sufficiently interesting to be well worth a visit from any travellers whose business or pleasure may bring them within convenient distance of the capital of the kingdom of Sweden. The Exhibition is held at a convenient distance from the centre of the city, and can be reached from the principal hotels in five or six minutes by what may almost be

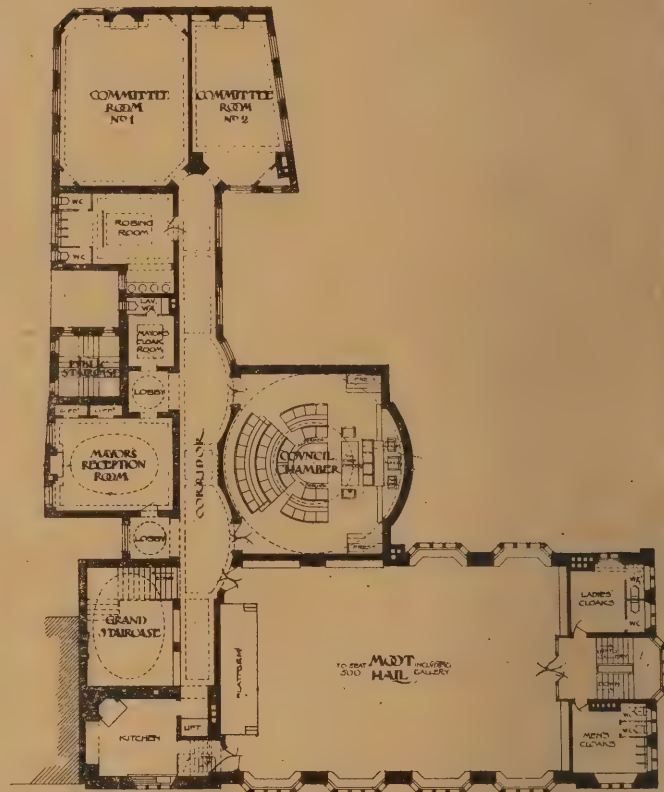
production of the general effect. Here and there will be found model cottages or dwellings from various parts of the country, from the Laplander's hut to the homestead of the wealthy farmer of the south, all of them completely furnished, and occupied by persons resembling those to whom they would naturally belong. Cages in appropriate positions contain examples of the birds and animals found in different localities, and the Lapps on Skansen are in possession of a considerable herd of reindeer. On various occasions during the Exhibition advantage has been taken of the population of Skansen in order to arrange shows and processions illustrative of the past history of the country, and fairs and other festivals have been of frequent occurrence. The Exhibition itself is contained in a large number of

SEPARATE BUILDINGS OR PAVILIONS.

some of which are public, while others have been erected by individual exhibitors, or by combinations of persons having some common interest. The public buildings, as they may



GROUND FLOOR



PRINCIPAL FLOOR

COLCHESTER TOWN HALL COMPETITION. MESSRS. BAKER, MAY AND RICKARDS' PLANS.

a distance might have been taken as rising from behind the ridge, is shown resting on the centre arch, and so carried by the two slender columns under. Not even the cleverness of the other portion of the design can atone for this. The courts are entered by the double flight of steps behind the statue, and the offices by the door under. All this is most effective, no doubt, but it cannot be said that it is justified by the interior arrangements. Mr. Brydon has spoilt his chances by an endeavour to work in the walls of the existing town hall, which is part of the site, and has placed the courts one above the other. His elevations lack any considerable charm. Mr. Hare's plan is not up to his standard, and is much too "busy" to impress one as a good working scheme. The façade he shows to High Street is well studied and among his best efforts, but, like that of Mr. Mountford, is completely dwarfed by the tower. In the perspective this is absurdly apparent, and even exaggerated by the impossible point of view. Of the two other designs submitted, there is little to be noticed. It remains only to say that Colchester has

described as a procession of tramcars, running along a line specially constructed for the occasion. The various buildings are distributed over ornamental grounds 208,000 square metres in extent, and communicating freely with the equal area of "Skansen," a sort of permanent exhibition of Swedish manners, customs, and modes of life in the past, which occupies a

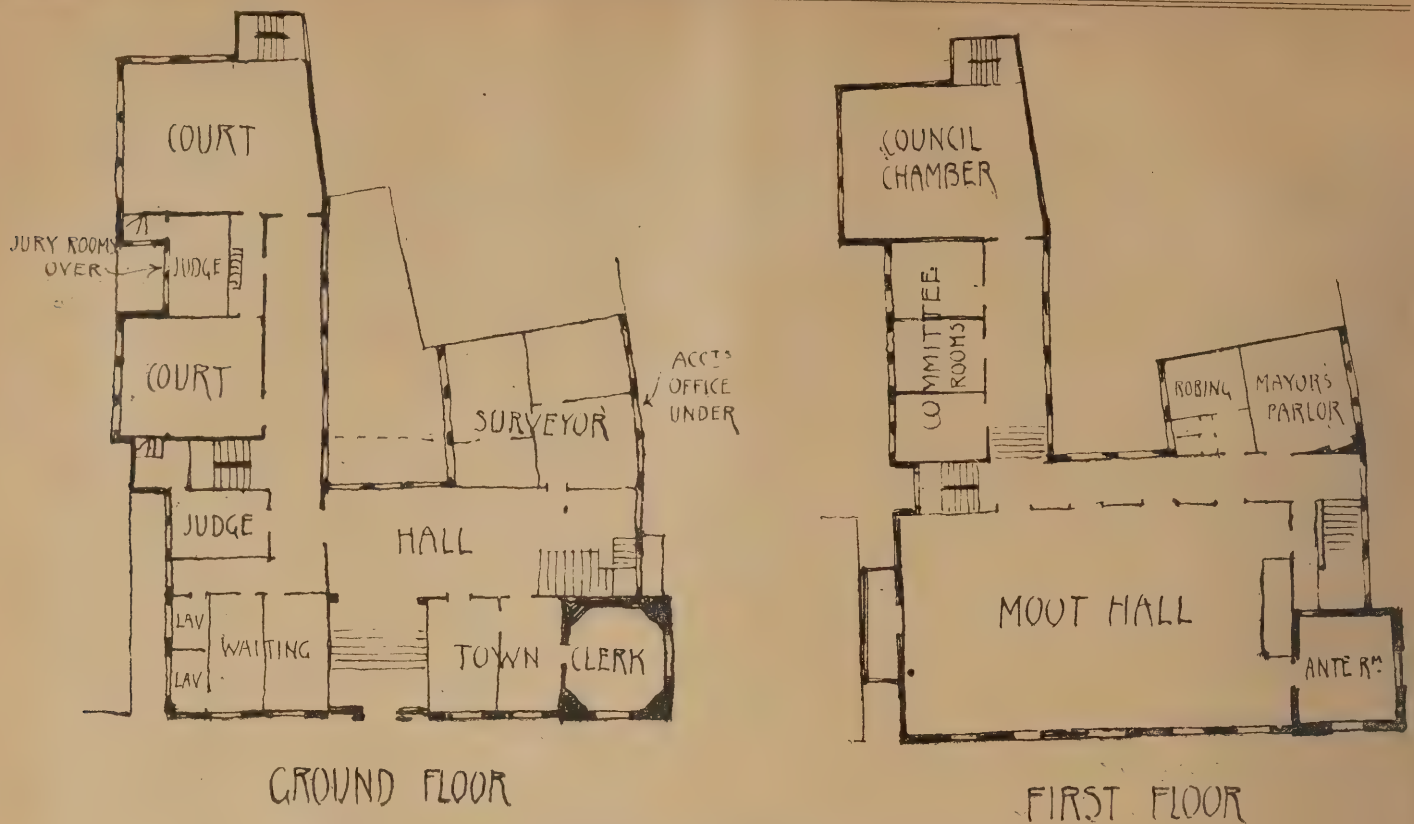
LOFTY MOUNTAIN PLATEAU

adjoining the Exhibition. This plateau has been applied to its present purpose, according to the "Official Guide," by the enterprise of Dr. Arthur Hazelius, and it is laid out and planted with great skill, and with very beautiful effect, while an electric railway gives convenient access to its highest parts. The roads wind along lofty precipices, affording a succession of charming views of Stockholm and its surroundings, and now and again lose themselves in dells and thickets, some of which are probably in great measure natural, while others are artificial, and all have been employed with great taste and skill in the

be called, are rendered subservient to classification, one of them being devoted to chemical industries and manufactures, another to machinery, a third to education, a fourth to fisheries, and so on. The principal of these buildings, containing manufactured goods from all the countries taking part in the Exhibition, is approached through a square annexe, from each corner of which rises a turret 55 metres in height, and furnished with a lift for passengers. The four turrets are connected at the top by galleries, and the view obtained from these is of extreme interest and attractiveness. Few cities can vie with Stockholm in natural beauty of site and surroundings, and its advantages in these respects have been enhanced by many favourable circumstances. The modern buildings are in harmony with their environment, and the ancient ones, although they have been rendered picturesque by time, have not been suffered to show any evidences of decay. The city is situated at the confluence of Lake Malar with an arm of the Baltic, and now occupies seven islands, besides extending to



COLCHESTER TOWN HALL COMPETITION. - THIRD PREMIATED DESIGN, BY MR. E. W. MOUNTFORD, F.R.I.B.A.



COLCHESTER TOWN HALL COMPETITION. SKETCH OF MR. E. W. MOUNTFORD'S PLANS.

the mainland in various directions. The intervals between the islands are spanned by FINE BRIDGES,

and the innumerable waterways are covered with small steamers, which divide the local traffic with the cabs, omnibuses, and tramcars of the streets. A certain amount of space is devoted to public gardens, well kept and planted, and beyond this bright and busy scene the eye passes to patches of barren rock or pine covered hill, or to more distant country showing signs of careful and profitable cultivation. Of the actual display of goods at the Exhibition there is not much to be said. The invitation to Russia to participate seems to have been an afterthought, and, although it was accepted, it has not led to anything like a representative show of Russian industries. The Exhibition is therefore mainly Scandinavian, and perhaps its most characteristic feature is furnished by the various processes employed in the manufacture and applications of celluloid, and of the various explosives of which celluloid forms the base. Extensive celluloid factories are to be seen near many of the stations on Swedish and Norwegian lines of railway, where the timber which furnishes the raw material is easily accessible. An ingenious advertisement is formed by two enormous parallel wheels of celluloid in the building for the exhibition of chemical products. They are as large as the ordinary water wheels of a mill, and each has attached to its edges an infinite number of sheets of white celluloid, each about 18 in. square, on which words are printed. As the wheels slowly revolve, sheet after sheet falls slowly over and displays its printed surface until this is covered by the sheet next in order. Besides the celluloid, there is a good display of leather, both in skins and in finished articles of various kinds, from purses and tobacco pouches to boots, harness, saddlery, and portmanteaus. Cutlery, also, is well represented; and Sweden has from time immemorial been famous for the fine quality of its steel, inasmuch that its knife blades would probably bear comparison even with those of Sheffield. Some knives in sheaths, of the form commonly worn from the belt in Norway, were of great beauty of workmanship, the handles and sheaths of horn or walrus tooth being most elaborately carved and ornamented, and the price being of corresponding character.

THE EMBANKMENT AND ITS ARCHITECTURE.

A WRITER in the Speaker has something pertinent to say concerning the manner of building on the Victoria Embankment. All the great European capitals, he remarks, have been more or less rebuilt during the last forty years, but nowhere has the activity in brick and mortar, granite and marble, been greater than in London. The first and greatest work undertaken was also the most successful; this was the embanking of the Thames. The elements of success in great urban designs are fewer than is generally imagined; simplicity, fitness, but above all, proportion—these, if allowed to reign undisturbed, can never fail to produce grand effects; the disturbance when it does come is nearly always from one quarter—in the want of harmonious grouping with other designs. It is upon certain rocks, well defined even at high water, that the great rebuilding of London may yet make shipwreck, unless the public or Parliament can be persuaded to intervene. The Victoria Embankment was a

TRIUMPH OF SIMPLICITY

and proportion; a long, gently curving line of granite wall, with trees and gardens above. This was the first stage. It was the greatest architectural event since the rebuilding after the fire of 1666; an opportunity rivalling that of the Venetians when the Rivo Alto became the Grand Canal. Following the lead of the Houses of Parliament, building after building has arisen; the gaps are rapidly filling up; the whole river front from Westminster to Blackfriars is nearly complete; and the people of the capital at this point may well ask themselves if they have made the most of their Embankment. Standing upon Waterloo Bridge, we look back upon one of the most remarkable views in Europe. From Blackfriars Bridge, spoilt by a peculiarly hideous railway bridge, which almost touches it, the long line of buildings up to where we stand is decidedly effective; of sufficient height for dignity, it nowhere exceeds the limits of moderation, and the whole effect is harmonious; the Temple nestles pleasantly in its gardens, and Somerset House—much admired by Canova—stands grandly out upon its great terrace. So far well. But once past Waterloo Bridge—extremely noble in itself—

the scene changes for the worse; all proportion disappears, and structures rear their heads which absolutely

CONTRADICT ALL ENGLISH TRADITION,

overwhelm the older buildings, and, instead of blending with neighbouring designs, obtrude themselves so aggressively upon the spectator that all harmony of effect is destroyed. There is no longer a London: only the Hotel Terrible and its fellows—monsters whose countless windows rise tier upon tier in irritating monotony. From Westminster Bridge the change introduced by these huge masses of masonry in blocking out the view of London is nearly, if not quite, as striking. The charge does not apply to hotels only; other buildings offend equally. The one rule which should prevail in all rebuilding on this important site is to keep every design within such limits of height as shall preserve a certain harmony in the whole of the great arc of the river from Blackfriars to the Palace of Westminster. Were these giant blocks really wanted? Did they arise in answer to any public demand? The question is not quite easy to answer; but the system of living which they involve has been rather forced upon the public than otherwise. We have put aside the battle of the styles, and, as regards their exterior aspect, merely draw attention to the overwhelming and crushing effect upon all adjacent buildings, and the awkward, irregular break introduced by them into what should be a long, curved line of buildings all skilfully harmonised. . . . Buildings as low, and beautiful, as the colleges of Oxford or Cambridge, the writer grants, we cannot expect to see again; but every step of the upward climb, each fresh story piled upon another, should, he argues, be watched with jealous eyes by those who have the appearance of London at heart. We must not be hasty, however, in condemning the architects for these things. They are hampered at every turn by the greed of speculators, the obstructiveness of the departments, and the apathy of the public.

MR. ONSLOW FORD, R.A., has now completed the memorial statue of Dr. R. W. Dale—a seated figure, peculiarly dignified in attitude, and an excellent likeness—and it will soon be sent to Birmingham, to be placed in the Art Gallery.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
September 8th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE relaying of Fleet Street was taken advantage of to carry out partially a very important improvement, though it only brings into greater prominence the necessity for its further extension along the lines already settled. It is now a long time since the County Council, in conjunction with the City Commissioners of Sewers, decided to widen the lower portion of Fleet Street. The block of buildings in which the Punch Tavern is situated was removed nearly a year ago, and the present handsome structures replace it, the frontage being thus put back several feet. Up to now the footway has been just so much wider, but now that the street has been relaid the footway has been made narrower and the street wider, while a "refuge" is being put up in the middle of the street.

It is a pity that the authorities responsible for the paving of Fleet Street should have chosen deal blocks instead of Karri or Jarrah wood, which is now admitted to make the best possible wood pavement. The unhappy experience of Gray's Inn Road, which was formerly laid with deal blocks, and is now being relaid with hard wood, ought to be a warning to all local authorities that cheapness is not true economy.

DESPITE the somewhat poor esteem in which Sheffield is sometimes regarded as a centre for the encouragement of Art, the Sheffield Society of Artists from time to time demonstrates in unmistakable fashion the existence of a society strong in its love of its Profession, whose members are keenly desirous of enabling the public in general to see what is best in the world of colour. Nor are they timorous in submitting their own works to the light of critical examination when placed side by side with those of master brushes. They prove the inherent ability of the local brushes in so doing, and exhibit themselves in by no means an unfavourable light. The success year by year of the Exhibition is also a tribute to the esteem in which the officials are held; because in the suite of rooms opened for public inspection last week they have gathered examples of some of the best work of the last few years. Men whose names are great in art circles have willingly entrusted their canvases to the Society, and Sheffield is richer for the period the Exhibition endures in having the privilege of inspecting a really notable collection, and one which will bear favourable comparison with any preceding show.

STREET-ADVERTISING in many of its forms must be regarded as little better than a public nuisance; but an exception may be made for a new development now observable in the Marylebone Road. The hoarding round the new Grand Central Hotel in that thoroughfare has been completely covered with a huge canvas, which has been painted by Mr. Bruce Smith, the well-known scene-painter. The artist gives a very good view of the building as it will appear when finished. Advertisements figure

prominently in the design, but the artistic effect is undeniable. It, in fact, gives some ground for the hope that we are on the eve of a far more pleasing system of street advertisement than any hitherto adopted. There may be some consolation in the reflection that many ages have similarly suffered. A recent discovery at Herculaneum shows that 2000 years ago posters announcing theatrical performances, public meetings, and electoral addresses were posted on the columns of the public buildings.

A GLOOMY picture has recently been drawn of the present condition of that most magnificent relic of ancient Art, the Parthenon of Athens. The British nation, as the possessors of the Elgin marbles, are naturally interested in the fortunes of the great temple from which they came. "There is no doubt," said Dr. Murray, in the course of a recent interview, "that the Parthenon requires repairing, though the writer to the Times exaggerates in describing the temple as doomed. A good many new stones will have to be inserted, the glaring effect of which will certainly be unpleasant. Nothing, however, that has artistic value will be restored or tampered with. The really serious matter in the present condition of the Parthenon is the rapid destruction by rain and frost of the beautiful western frieze.

THE negotiations which have been proceeding for some time between the Marquis of Bute and the Duke of Fife for the purchase of Pluscarden Priory have now been concluded. The Priory becomes the property of the Marquis, who is to thoroughly restore it. The work of rebuilding will be on an extensive scale, involving, it is said, close on £100,000, and will occupy several years. Part of the Priory is at present occupied as the Free Church, and the upper part is frequently used as a dancing hall. It is about six miles from Elgin, is a centre of attraction for tourists, and the lovely grounds are greatly frequented by picnic parties. The work of restoring old Greyfriars Church in Elgin is being rapidly carried on at the expense of the Marquis, who is also restoring some ecclesiastical ruins in South Wales.

AN important meeting in connection with the scheme for providing the ancient parish and town of Loughrea with a new church was recently held under the presidency of the Lord Bishop of Clonfert. Tenders were opened for the building of the new church, and after consideration the committee in charge of the scheme chose that of Mr. P. Glynn, Dublin, whose figure was £13,000. When completed it is estimated that the cost will be about £17,000. The site selected is that known as Monahan's Hotel, a block of buildings in Barrack Street, and one that commends itself by its central, convenient position in the best part of the town as the most suitable that could be obtained. The meeting further arranged to have the foundation stone laid on October 2nd. The existing sacred building was found unfitted for the requirements of the parishioners through the inadequacy of its accommodation and its growing decay.

THE Athens correspondent of the Standard says: "The alarmist account recently given in the English press regarding the condition of the Parthenon is wholly unjustified by facts. The old commission, consisting of Mr. Penrose (Great Britain), Herr Doura (Germany), and M. Magne (France), is still in existence, and under its supervision a body of Greek savants, aided by the director of the German Institute and a French architect, are constantly at work on the preservation of the building, at the expense of the Greek Archaeological Society. An outlay of 45,000*fr.* has been incurred on the single item of scaffolding for the strengthening of a portion of the west frieze pending the replacing of the architraves and capitals with marble already extracted from the old quarries at Lentelicus.

MESSRS. WALTON AND LEE have just sold to Sir Alfred Seale Haslam the historical estate of Breadsall Priory, near Derby, belonging to

Captain Rothwell, and including the park cottages, and farmlands. The present residence, a building of late Elizabethan date, occupies the site of the ancient priory of Holy Trinity, founded here in the reign of Henry III. by an ancestor of the Dethics for friars of the Cistercian Order, but subsequently converted into a priory of Augustinian canons. The estate was granted by Edward VI. to Henry, Duke of Suffolk, since which it has been in the possession of the Bentleys, the Mosleys, and the Blands, and other well-known county families.

At a special meeting of the committee and governors of the Newcastle Royal Infirmary it was announced that Mr. John Hall, a wealthy shipowner, had offered £100,000 towards the erection of a new Infirmary, either on the Town Moor or Castle Leazes, on condition that the fund already subscribed as a "Jubilee Memorial" should be devoted to the maintenance of the institution. It has already been decided to erect the new Infirmary with the £100,000 subscribed on the present site, which is convenient for the Central Station, but girded by cattle market and railway. The whole scheme, however, will now have to be reconsidered.

THE session of 1897-8 at the Sheffield Technical School, now to be known as the Technical Department of the Sheffield University College, began on Monday. The prospectus for the session gives full information as to the various courses of instruction, and intending students cannot do better than obtain a copy and put themselves in communication with the college staff, who are ready to give every advice as to the instruction most suitable in particular cases. The purpose of the school is to provide instruction in those branches of science, observance of whose principles underlies the successful conduct of all industries. Naturally the industries to which the courses of instruction in Sheffield are made subsidiary are those of the locality—steelmaking in all its branches, the manufacture of machinery, the metal trades in which steel and iron are not used, coal-mining, building, and electrical engineering. Hence the school affords instruction which will be useful to every person intending to engage or actually engaged in Sheffield manufactures, in whatever capacity.

It is high time that Manchester possessed an Art Gallery worthy of the city, says the Manchester Guardian. Mr. Phythian told the City Council recently that the Art Gallery Committee could not do its work properly for want of space. The rooms at the old Royal Institution, in themselves but poorly adapted for the purposes of a picture gallery, are barely large enough to contain the present permanent collection, and will, we think, in a few years be hopelessly inadequate. But the committee has always desired to do something more than form a permanent collection. It has rightly felt that it must organise loan exhibitions of one kind or another to supplement the necessarily small and imperfect series of English pictures possessed by the city. These exhibitions may not always be successful from a commercial point of view—we are sorry to hear that the remarkable Tudor Exhibition, for instance, was a financial failure—but they are always interesting and instructive to those who care for artistic things, and it is to help and to increase this section of the public that the Art Gallery Committee exists. Under the present conditions, however, the Committee is unable to hold any loan exhibitions without throwing the permanent collection into confusion. Mr. Phythian may well protest against such a state of things. If no public-spirited citizen will do for Manchester what has been done for Liverpool, and the City Council continues to postpone consideration of the question, the Art Gallery Committee will soon be reduced to a state of impotence, and the autumn and spring exhibitions will have to be discontinued.

THE Rev. Le Boëuf, writing to the Times, says:—"I thank you for your kind help to the Croyland Preservation Fund by giving at

various times since 1884 brief notices of the progress of the work at Croyland Abbey. We have nearly finished the new east end of the Abbey Church. The three sections still needing immediate repair are the underpinning of the north wall and rebuilding a buttress, the porch, and the roof, for which a further sum of £800 is still required. We are also endeavouring to raise £400 for an organ. I have now written unaided 14,145 letters and reports on behalf of the Abbey Preservation Fund, and regret to state received only the sum of £3272 14s. 10d. during the years 1887 to 1897. May I therefore once more appeal for help from your readers for the venerable, historic, and ancient Abbey Church of Croyland? On St. Bartholomew's Day, 699 A.D., St. Guthlac landed on Croyland Isle, nearly 1200 years ago. Surely the lovers of architecture, historians, and the readers of the late Rev. C. Kingsley's works will help us to raise the sum of £800."

LAMETON CASTLE, where Lord Durham will entertain the Prince of Wales in November, is situated on the northern bank of the Wear, between Durham and Sunderland. It is placed on a steep eminence immediately overhanging the river, and is almost completely sheltered by the woods which crown the valley on every side except the western. A tradition exists that an enormous worm or serpent which infested the river near this spot was destroyed by one of the Lambtons by means of a coat of razors; and a mutilated statue or effigy is pointed out to give credence to the tale.

THE French Academy has come into a legacy of over £27,000. The testator, M. Pierre Lasserre, bequeathed that sum to it subject to conditions. The sum he left is to be divided into three parts, the interest on one part is to go in prizes to the author or authors of literary works, that on the second to the author of a scientific discovery, and that on the third to a musical composer who has produced a notable work so considered by competent persons. The Academy is to pay yearly the interest on two-thirds of the capital to the Academies of Sciences and of Fine Arts.

ADVICES to hand from Cape Town state that definite plans for the erection of new docks, basins, and coaling jetties at Simon's Town are now engaging the attention of the Admiralty. The scheme is a large one, and will, if approved, have a very strong influence on the fortunes and progress of the naval port. They involve an expenditure of some two and a half millions of money, although they have been so drawn up that the scheme will admit of modification and curtailment if considered desirable. Mr. Shield, the civil engineer who had been sent to Mauritius to draw up plans for docks by the Admiralty, called at Simon's Town on his way back, and his scheme, which has been approved by the Commander-in-Chief at Simon's Town, is at present under consideration. It is tolerably certain that docks will be constructed at Simon's Town; but the actual site, the date of commencement of the work, and plans to be followed, are matters on which no decision has yet been arrived at. The docks, if constructed, will take the largest ironclad afloat, and it is possible that an arrangement will be come to with the Harbour Board, under which the Royal Navy shall be entitled to a prior claim on the Cape Town Dock in time of war. For the construction of extensive docks for the Navy, Cape Town is, of course, utterly unsuited. It is anticipated that the new reservoir at Simon's Town, which has a capacity of 40,000 tons of water, will be completed in the course of a couple of months. The reservoir, which has been constructed by the Imperial authorities, will be an immense benefit to the port and to the ships, and will obviate the possibility of drought for the future.

The following prizes and certificates have been awarded in the courses of architectural lectures and architectural and constructional drawing and quantity surveying at University College, as the result of the work and examination of the session 1896-97. Architecture,

Professor T. Roger Smith.—Fine Art: Donaldson Medal, M. H. West, of Maidenhead; prize, G. G. Lean, of Isleworth. Third class: E. Martineau, of Hastings. Construction: Donaldson Medal, C. F. Dawson, of Barking; prize, F. J. Freeman, of Blackheath. Second class: H. S. R. Boyajian, of Kharput; G. G. Lean, of Isleworth. Third class: E. Martineau, of Hastings; W. P. D. Stebbing, of London. Classes maintained by the Carpenters' Company—Architectural Drawing: First prize, J. Porter, of London; second prize, P. H. Pape, of London; certificate, 3, E. C. Desch, of London. Construction drawing: First prize, A. E. Stump, of London; second prize, W. Smalley, of London. Second class: A. S. Kilby, of London; A. Pethybridge, of London; A. Thwaite, of London. Quantity Surveying (Elementary class): Prize, W. B. Payne, of London. Advanced class: Prize, H. C. Simmons, of London. Second class: T. A. Burr, of London; W. Smalley, of London. Third class: H. B. Ward, of London.

AN examination of master and operative plumbers applying for registration under the National Registration of Plumbers was recently held by the Worshipful Company of Plumbers at the Borough Polytechnic Institute. Twenty-six candidates were present from various parts of London and several provincial towns. The practical tests included lead bossing, pipe bending, and joint making. The examination questions included the subjects of roof covering, contamination of drinking water by faulty connections, arrangement of bath, sink, and closet wastes, drainage of town houses, and disconnection with sewers. Five candidates succeeded in passing the examination in practical workmanship.

FOR years past the structural deficiencies of the Paris Conservatoire in the Faubourg Poissonnière have been the object of bitter complaints. The accommodation is utterly inadequate, the building is in the most insanitary state, while were a fire to break out in it there would probably be a perfect holocaust of victims. The probability is that the Conservatoire will be moved before long to the Nouvelle-France barracks in the same street, which will, of course, be evacuated by the troops. The Caserne de la Nouvelle-France was erected early in the last century on the site of an open-air fair, as celebrated in its time as that of the Tivoli or the Porcherons.

JUST now the banks of the Thames, Kennett, and other rivers within reasonable reach of the metropolis are much frequented by students who have entered the Royal Academy Competition for the Hundred Guineas Chiswick Prize, the subject selected being a river lock. Some artists have chosen the old scenes in the Kennett Valley, between Aldermaston and Newbury, a track of wood and stream which always present charms to the landscape painter.

A GREAT deal of criticism has been from time to time offered upon the decorative work which is being carried out by Sir William Richmond in St. Paul's Cathedral. Lately there has been a revival of these expressions of opinion, caused apparently by the publication of preliminary sketches for the mosaics which are to fill the quarter domes. The argument now advanced, that the symbolism of the details used in these designs is out of date and inappropriate, is one that may be safely left for refutation by the artist and the ecclesiastical authorities, who have an expert knowledge of such matters; but the further assertion, that the work already done is in direct opposition to the spirit of the building, involves æsthetic questions which are worthy of wider consideration. What we are asked to believe is that these mosaics, on account of their strength of colour, vigour of handling, and elaboration of detail, do not support, or harmonise with, the style and scale of the surrounding Architecture. They are, in fact, too definite in their imaginative qualities to please the crowd, which sees no virtue in Art that is not realistic in treatment and formal in expression.

THE secret of the whole misunderstanding lies in the fact that, as a nation, we have no real sensitiveness to, or love of, colour for its own sake. We are said to take our pleasure sadly; and certainly the Art that is most popular among us is that which is sombre and subdued, depending rather upon form than colour for its effect. To the average man the grey bareness of the interior of St. Paul's Cathedral, accentuating and exaggerating the mere size of the building, is more effective than the happiest colour combination, and no decorative scheme would be acceptable which did not depend for its results upon largeness of mass and approximation to sombre monochrome. Happily, there is an influential minority which has progressed beyond this rudimentary stage of the national taste, and it is chiefly by their co-operation that Sir William Richmond has been given the opportunity of fitting to the Cathedral decorations magnificent enough to complete appropriately the splendid design of one of our greatest architects. Instead of carping at the work which has been already done, we have cause for thankfulness that it should have been entrusted to an Artist so admirably out of sympathy with popular prejudices.

"THE Act to amend the law respecting the Metropolitan Water Companies" came into operation last week. The first clause deals with the powers of the "proper authority," with "complaints," and with persons who have a right to complain. Under this clause the proper authority to hear any complaint is the body known as the Railway and Canal Commissioners; the persons who have a right to make a complaint are water consumers or any local authority, and they can make a complaint against any of the eight Metropolitan water companies; but the complaint must refer to the failure of the particular Company to perform a statutory duty, or refer to the quantity or quality of the water supplied for domestic use. If satisfied that the complaint is well-founded, the Commissioners, according to the circumstances of the case, are invested with powers to cause the ground of complaint to be removed, impose a penalty, and award damages to the complainant. The second clause gives important powers to local authorities to aid complainants financially in seeking a judgment from the Commissioners—that is to say, whenever a question which appears to be of interest to water consumers within that district ought to be determined. The third clause extends the provisions of the Water Acts of 1852 and 1871 to the whole area within their limits of supply. The last three clauses provide for a publication of a "return" by the Commissioners, and consist of explanatory definitions.

It is announced from Australia that Mr. H. P. Gill, the director of the Adelaide School of Design, is about to visit this country, as the representative of the Public Library Board, to purchase pictures for the Art Gallery. The funds at his disposal are drawn from a bequest made by the late Sir Thomas Elder for the acquisition of works of Art. Mr. Gill is an old South Kensington student, who was appointed to the mastership of the Adelaide School some fifteen years ago.

At the last meeting of the General Committee of the Walsall Science and Art Institute, it was resolved that the arrangements having now been completed for the work being handed over to the Corporation and carried on as one of the municipal undertakings: "That, the Walsall Science and Art Institute, being an institution within the meaning of the Literary and Scientific Institutions Act, 1854, be dissolved as from the 31st day of August, over two-thirds of the members of the Institute having signified in writing their assent to such dissolution, and that the whole of the property of the Institute, and the fittings, furniture, books, and apparatus belonging thereto be and the same are hereby given to and vested in the Mayor, Aldermen, and Burgesses of the Borough of Walsall as the local authority under the Technical Instruction Acts, 1889 and

1891, and the Public Library Act, 1892, they paying all debts and liabilities already or hereafter to be incurred in connection with the Institute, and receiving the grants already earned or now accruing from the Science and Art Department.

REGENT STREET, from end to end, is "up," and for many days not a single vehicle has passed through that well-known thoroughfare. Victoria Street is in a similar plight, and in several other directions minor paving operations are going on. In Pall Mall, Piccadilly, and St. James's Street builders' and decorators' ladders disfigure the clubs, and make walking on the pavements a trial to the nerves; while Oxford Street has its own more permanent trials in the shape of numerous structural demolitions rendered necessary by the progress of the Central London Railway, which runs through its entire length. But if the holiday season has its drawbacks it has also its compensations. The crossing of the Strand is no longer a task of danger and difficulty, as it was a few weeks ago. The natural beauties of the park are to be enjoyed free from those irritating restrictions which are necessary in "the season;" and you may hear the best of music indoors or out of doors untroubled by the social conventions which have to be observed when the town is full. There are many less endurable periods in London than the dog days.

MR. ONSLOW FORD's colossal statue of Dr. Dale is now completed, and is to be unveiled in the Birmingham Art Gallery at the beginning of next month. It is hailed as a most successful representation of the great Nonconformist leader, and has the merit of being, as a work of Art, thoroughly dignified and serious. The difficulty presented by the unpicturesque modern dress has been minimised by judicious treatment; and the limitations imposed by the necessity of exact portraiture have not prevented the artist from giving reasonable scope to his sense of design and instinct for originality.

THE Earl of Carlisle opened at Carlisle the first exhibition of the newly-formed Cumberland and Westmoreland Society of Arts and Crafts. His Lordship is one of the contributors to the exhibition, one of his exhibits being a medallion of Lord Wensleydale, his own grandfather, and also grandfather of Sir M. White Ridley and Mr. J. W. Lowther, M.P. Lord Carlisle congratulated the Society upon its first exhibition. He had been very much struck by the progressive improvement which such societies had made throughout the country. It had been remarkable that if such pre-eminently good work could be done at Keswick and Kirkby Lonsdale, there should be nothing of the kind at Carlisle; but he hoped the new school in that city would not merely be an Art School for Carlisle, but would become the head of the Schools in Cumberland and Westmoreland. He did not wish to criticise the exhibition in an unfavourable sense, but as it stood at present he thought the picture element was too largely represented. As a painter himself he did not wish to say anything to disparage pictures, but the Society ought not to be principally a place for exhibiting easel pictures. Its desire was to encourage art design and the application of the art feeling to industries generally. Commenting upon the competitive designs for a poster, and for the certificate of the Society, he said he thought they were a great justification of the Schools of Art, which were very often unjustly deprecated. When these Home Art Schools were first established a fear was expressed that they might become a sort of adult kindergarten, and ingenious works had been devised, apparently with the intention of keeping people out of mischief. As time had gone on, however, he was very glad to say that benevolent idea had largely dropped behind, and excellence had been pursued for its own sake. There was a danger that places of that kind might become places for the exhibition of amateur work of all kinds. He should be sorry to say anything to

discourage any lady or gentleman from joining the Society, but he did hope the standard they would set up would be a professional and not an amateur one. They wanted to see the best work that could be done, and not what the Americans called a "parlour trick." They did not want that sort of work to which the onlookers said "charming accomplishment!" There was a danger of people thinking that roughness of execution was a merit in itself. No doubt mechanical excellence of execution became tedious if unaccompanied by beauty of design; but he could see no reason why a design should be better from being executed in a comparatively slovenly manner. Looking also at the work of different designers, one was tempted sometimes to wish that people would not follow eccentricity for its own sake.

HIGHGATE ARCHWAY, which in its day was considered a marvel of engineering skill, is soon to be replaced by a handsome span designed by Sir A. E. Binnie, the engineer of the London County Council. The present archway is about 86ft. high and half as much in width, and is formed of stone, flanked with substantial brickwork, and surmounted by three semi-arches, carrying a bridge wide enough for two carriages. The tender of Mr. C. Wall, of Chelsea, for £25,126 has been accepted, and a period of two and a half years has been allowed for the execution of the contract. The cost is to be borne by five authorities. When it is completed, the new archway will consist of one handsome span of ornamental ironwork, completely covering the roadway and part of the embankments and retaining walls on either side. Owing to the proximity of the New River Company's reservoir, however, unusual care will have to be taken.

THE autumn exhibition of the Birmingham Society of Artists, now in course of preparation, is rapidly approaching completion, and promises to be one of exceptional interest and importance. The private view will take place to-morrow, and the exhibition will open to the public on Friday. The post of honour in the Great Room is appropriately occupied by a large and interesting work by the president of the society, Sir E. J. Poynter, P.R.A., entitled "Horæ Serenæ." On the opposite wall hangs a large and characteristic work by Sir E. Burne-Jones, Bart., "The Dream of Lancelot at the Door of the San Grael." Another central place in this room is filled by a large and brilliant work by Mr. Holman Hunt, the subject being "May Morning on Magdalen Tower, Oxford." Opposite this hangs the most recent work by Mr. Walter Langley, R.I., entitled "Charity," a large oil painting possessing much power and pathos. Near to this are large and important works by Mr. David Murray, A.R.A., and Mr. Alfred East, R.I., the former being represented by "Happy Hampstead," and the latter by "A Lonely Road." Mr. C. Napier Hemy sends a large work, strikingly unlike his usual pictures of the sea—this being "A Flemish Calvary, in 1550." Mr. Peter Graham, R.A., whose works are too rarely seen on these walls, is this year represented by a very powerful example called "The Close of Day." Mr. Val C. Prinsep, R.A., is well represented by his "Theodora, Empress and Comedian." Mr. Arthur Hacker, A.R.A., sends an impressive work, entitled, "There was a great cry in Egypt." Mr. James Sant, R.A., sends "The Song of Liberty." Mr. Moffat Lindner contributes one of his very finest works, "The Storm Cloud." Mr. W. A. Breakspere shows to advantage in his large fancy portrait of Miss Coats. Mr. Aumonier has a large and very fine landscape, and Mr. Walter Hunt one of his excellent animal pictures. Among other contributors may be mentioned Mr. G. F. Watts, R.A., Sir Wyke Bayliss, P.R.B.A., Messrs. F. Goodall, R.A., J. R. Weguelin, R.W.S., Carl Schloesser, C. W. Wyllie, Clayton Adams, W. Logsdail, Percy Bigland, John Parker, F. Bramley, A.R.A., Clarence Whaite, S. Melton Fisher, R. W. Allen, and many other artists of eminence. The members of the Society and other local artists are well represented.

THE ancient Parish Church of St. Mary, Gosforth, Cumberland, now undergoing restoration, has proved rich in antiquarian remains. It is not many years since the mythological character of the cross in the churchyard was elucidated. It is believed to be the tallest ancient cross in Britain, and is pronounced "one of the costliest olden roods in Europe." Of red sandstone, elaborately carved with mystic figures in bas relief, it has withstood the storms of twelve centuries, and is in excellent preservation. One of the sculptures represents the Crucifixion. The remains of three other crosses, apparently of about the same age, have also been found at different times in the churchyard. A correspondent states that during the recent alterations two hog-back or coped tombstones, supposed to be one thousand years old, have been found. One was under the foundation of the north wall, built probably in 1125. Another was found at a corner of the nave, forming the foundation of the pillar supporting the chancel arch. The one found in the north wall is in two pieces, and is 5ft. 6½in. long. On one side are carved interlaced ornaments of four patterns; on the other there is a battle scene representing two hostile armies. At the head of one group stands a chief armed with a spear, a circular shield in his right hand; behind him are thirteen warriors, all bearded, and with spears over their shoulders. Opposite stands the chief of the opposing army, holding upright a pole or lance at the top of which is a triangular flag, and behind him also there are thirteen men. The second hog-back is in three pieces, and is 5ft. 1in. long. It has quite a different character. At the apex there is a rope or twist much worn away, and between the rope is the plaited body of a serpent with the head of a wolf, open-jawed, and like those on Gosforth Cross. In a panel 4ft. long there is a design in bold relief of two wolf-headed serpents in fierce conflict with a human figure, which subjugates or rides upon a smaller serpent, and holds one of its jaws in each hand. Hog-backs, whole or in fragments, exist at Bongate (Appleby), Aspatria, Cross-Canonby, and Millom. They are undoubtedly Scandinavian.

WHEN it was supposed that the much-debated scheme of establishing a subway between the Royal Courts of Justice and the legal sanctum of the Middle Temple had been dexterously settled by the stipulation that the City and West End Railway Company should construct the work as the penalty of passing under the Strand, there was a miscalculation of the chances of the Company getting their bill through Parliament. The House of Commons Committee rejected the project, and the Strand Subway is where it was. The Benchers of the Temple have made another application to the District Board of Works for permission to construct the underground passage, and this is to be granted subject to a guarantee that the public are to have free access to it when open for the business of the Courts, and the usual clauses as to the protection of sewers and other property of the ratepayers.

THE huge Roman Catholic Church at St. Giles's Gates, Norwich, is making slow but steady progress. The façade of the old prison still to a large extent hides what is being done, and outsiders might almost suppose that work has been lately at a standstill. On the contrary, the foundations of the chancel and transepts have just been finished, the masonry of the chancel is already rising into view even from the street, and one can now form some general idea of the imposing dimensions of the pile as it will appear when completed. Not half the area finally to be covered by the church has yet been built upon. Where the temporary chancel now is will rise the central tower, from which to the farthest buttresses of the chancel will be 70ft. The progress of the easternmost parts of the edifice will, of course, be much slower than was that of the nave, for whereas extreme plainness characterises the nave, the chancel will be marked by great richness of architectural detail.

Surveying and Sanitary SUPPLEMENT.

SEPTEMBER 8TH, 1897.

Practical Carpentry and Joinery.

BY GEO. ELLIS.

IT is intended in this series of articles to give an explanation of the modern methods of construction and production, as applied to the crafts of the carpenter and joiner, in some of the more important branches of building. To use the information to the best advantage it is necessary that the student should become acquainted with the constitution, &c., of the raw material, and to that end it has been thought advisable to

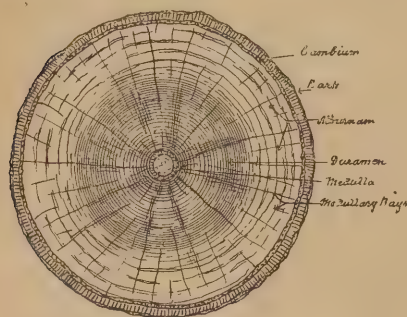


FIG 1 SECTION OF EXOGEN

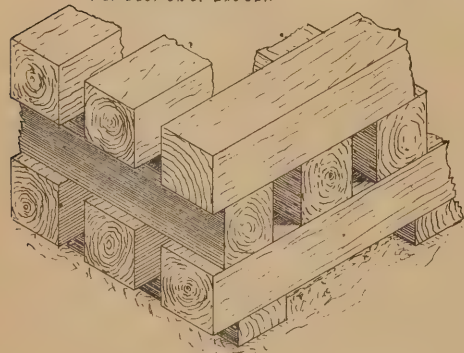


FIG 2 SEASONING SALKS

commence these papers with a few remarks relating to timber. Trees are divided botanically into two great classes: Endogens, or inward growers, Exogens, or outward growers. It is with these latter only that we have to deal, as the wood used in building is derived exclusively from this class. If we take a transverse section of the stem of an exogenous tree, we shall see that it is composed of a number of concentric rings or layers surrounding the pith or medulla, and enveloped by the cortex or bark. In trees of upwards of two years' growth the pith is usually found dried up, having fulfilled its original purpose of conveying nourishment from the roots to the young plant; as the plant increases in size the supply becomes inadequate, and the

work is taken up by the medullary rays—these are radial lines of cellular tissue connecting the pith with the cambium, or growing tissue, immediately under the bark (see Fig. 1); they are always present in exogenous trees, but in most cases are so minute as to be invisible to the naked eye. They are very distinct in the oak and beech. The outer layers of woody tissue are of looser texture and lighter colour than the inner layers, and constitute the alburnum, or sapwood; the interior zones, compact and dark-coloured, form the perfect wood, known as duramen, or heartwood. One of these layers is deposited every year on the outside of the stem, and is consequently called the "annual ring." The process may be briefly described as follows: In the spring of the year, when the leaves begin to form, moisture, &c., is absorbed by the roots from the soil, and passes up the cellular tissue of the sapwood into the branches and leaves; during its passage some portion of it undergoes chemical change, and exudes under the bark in a thick, viscid fluid, forming a circumscribing film between the outer layer of sapwood and the bark, which, becoming softened, expands in the process. This deposit—the cambium—is gradually transformed into cellular tissue, forming the spring growth of the annual ring. In the autumn (the period of rest for vegetation approaching) the sap descends from the leaves, flowing down over the spring layer, and forming a darker zone of ligneous matter, penetrating and adhering to it. This is termed the autumn growth. A portion of the descending sap, now charged with secretions peculiar to the tree, passes through the horizontally communicating medullary cells, to the inner zones of cellular tissue, depositing its secretions therein, and rendering the cells dense and durable. This is the only part of the tree that should be used for constructional purposes.

FELLING.—Trees should be felled when they reach maturity, and in the winter, when the sap is down, as this substance rapidly decomposes and sets up decay.

SEASONING.—The trunks should be lopped, barked, and hewn to balk as soon as possible after felling, then stacked under cover so that air can circulate freely around them; exposure of green timber to the direct action of the sun and rain is very detrimental, causing the surfaces to be covered with shakes. When the timber is squared it should be stacked as shown in Fig. 2, the top of the stack being covered with weather boarding, the bottom resting on slabs about 6in. thick; air can circulate freely in such a stack, gradually and thoroughly drying it; this is the best method, but is rather long, timbers 24in. square taking about twelve months. The process can be hastened by submerging the logs in running water, with their butts towards the flow, for about a fortnight. This washes out the sap and facilitates the subsequent drying, but it robs the timber of some of its elasticity. Hot-air seasoning, or desiccation, is a very rapid method, but has the drawback of rendering the timber brittle, and also bleaching coloured woods. It can only be applied with success to stuff of small section. The timber

to be dried is enclosed in a small chamber or oven, through which a current of air heated to 120° is driven for a few days. The

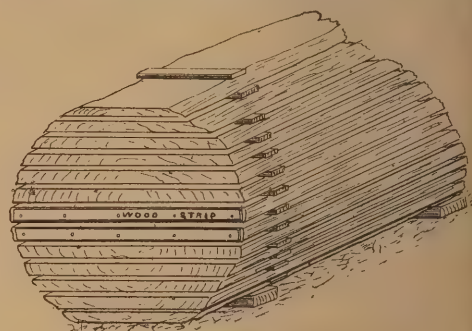


FIG 3 SEASONING BOARDS

stuff is then taken out and stacked in a dry room till wanted. To dry boards after cutting, they should be stacked as shown in Fig. 3, with narrow strips of a similar wood between them; waste pieces of oak are frequently used indiscriminately for the purpose, and valuable boards are permanently stained, a result due to chemical action.

PRESERVATION.—Various methods of preserving wood from decay and the ravages of insects have been adopted with more or less success, but two only have come into general use—painting and creosoting—the former is too well known to need any explanation, the latter consists in the filling up of the cellular tissue of the sapwood with oil of tar or creosote, by immersing the timber in containers of the heated oil; this is suitable for weathering purposes in soft woods, but for hard woods, and to render insect-proof, the timber must be heat-dried, the air exhausted from the cells, and the heated creosote forced in under hydraulic pressure. English oak will absorb about 2lb. per cubic foot. Timber that is to be inserted in the ground, as gate-posts, &c., should have the buried portion, and for six inches above the ground, coated with tar and fine sand. The butt ends should be placed uppermost and covered with a capping piece, for moisture is absorbed by the tree in an upward direction, and if the wood is reversed, none will enter from below.

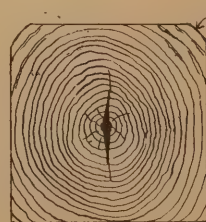


FIG 4 HEARTSHAKE

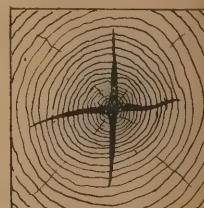


FIG 5 STARSHAKE

DISEASES AND DEFECTS.—Growing timber is subject to decay at the heart if allowed to stand when past maturity; this period is

reached in from 50 to 120 years according to the species. Rottness is set up when a branch is torn off, or if lopped, so that the plane of the cut approaches the horizontal, as rain will then enter at the wound and decompose the juices of the tree. Dry Rot is the decomposition of the substance of cut timber by the action of fungi, the spores of which



FIG 4 CUPSHAKE

germinate thereon under favourable conditions, and the plants spread throughout the timber in a moist, white, thread-like network, devouring the albuminous substances, and reducing the ligneous matter to dry powder. The situations in which timber is most liable to this disease is when built into walls before they are dry, and without provision for ventilating the recesses; into basements close to or covered by the soil, as floor timbers, wall plates, &c. When the disease has got a firm hold the only cure is the entire removal and burning of the infected material; but the early stages may be arrested by covering the attacked portion and all surroundings with boiling tar or corrosive sublimate. Wet Rot is the putrefaction of the sap in green timber, and is principally caused by the wood becoming saturated with water. Heart-shakes (see Fig. 4) are splits in felled timber across the heartwood, due to air getting access to the interior through the medulla, and so drying that portion more rapidly than the exterior.

STARSHAKES (Fig. 5) are radial clefts in the tree in the direction of its length, due to the expansion of the sapwood in the spring; the heartwood, being denser, does not expand to the same extent, and when adhering firmly to the alburnum, is rent or split as shown in the sketch.

CUPSHAKES (Fig. 6) are clefts or separations between the annual rings of the heartwood and sapwood, and proceed from the same cause as the starshake, but the result is somewhat different. When the expansion of the sapwood occurs, its adhesion to the last formed ring of heartwood not being sufficient to withstand the strain, yields, and the annular cleft results. This form of shake is prevalent in trees with large and coarse annual rings, such as Pitch Pine, Walnut, and Memel fir.

UPSETS (Fig. 7) are a crushing-in of the grain due to end falls of the log, common in brittle timber like Honduras mahogany. Waney edges are due to the attempt to obtain too large a balk from the log when squaring it. Foxyness is the commencement of decay in Oak and similar coloured wood indicated by a



FIG 7 UPSET

reddish-brown stain in well-defined patches. When far advanced the wood crumbles to the touch, and is then said to be rotten.

MARKET FORMS.—The following are the principal forms into which timber is converted for the market: A log is the trunk felled and lopped; a balk is the log squared by axe or saw; a plank in hardwood is any cut stuff over 1½ in. thick and 9 in. wide, in soft wood over 2 in. thick and 10 in. wide; deals, over 2½ in. thick and less than 10 in. in width; battens, over 2 in. thick and less than 9 in. wide; boards, less than 1½ in. thick and over 6 in. wide; die

square, stuff between 5 in. and 9 in. side; quartering, 2 in. by 2 in. to 4½ in. by 4½ in.; fitch, a balk cut in two lengthwise; a square of flooring is 100 ft. superficial; a hundred of deals, 120; a load of timber, 50 cubic feet; a float of timber, eighteen loads. The St. Petersburg standard is the one in general use for computing the quantity of timber in bulk, and consists of 120 pieces, 12 ft. long by 11 in. by 1½ in. To find the number of feet run of any scantling required to make a Petersburg standard, multiply 1440 by 16½, divide the product by the sectional area in question, and the quotient will be the number of feet run.

(To be continued.)

NEW WORKHOUSE INFIRMARY AT SELLY OAK.

THE new Workhouse Infirmary at Selly Oak, which was opened by Mr. F. Houghton (chairman of the Building Committee) on Friday, and which is estimated to cost from £45,000 to £50,000, is situated on elevated ground adjoining the Workhouse. The land slopes from east to west about 1 ft., an inclination which has been taken advantage of in the planning of the pavilions, of which there are four, with sufficient space for an extension of another four, the administrative department being in the centre, with the laundry, boiler-house, engine-house, dynamo rooms, and water tower at the rear. The site covers an area of about six acres. The buildings, which have been built by Mr. Thomas Rowbotham, of Coventry Road, from the designs of Mr. Arkell, are a departure from the generally acknowledged workhouse style, the idea being to make the rooms light and cheerful for the patient, and also to render the surroundings pleasing and elevating. Externally the buildings are of red brick, relieved by dark red-coloured brick and terracotta strings. The roofs are covered with bright-red Broseley tiles, and the

RENAISSANCE STYLE OF ARCHITECTURE

adopted gives a bold and imposing appearance to the structure from the Workhouse Road. Accommodation is provided for about 300 beds, including patients and officials, whilst provision has been made for a future extension of a similar number. In the centre are the one-story kitchen block and administrative buildings, these being connected with the pavilion by covered ways. The doctors' rooms, nurses' general sitting room, serving rooms, matron's rooms, stewards' stores, dispensary, telephone exchange room, and the nurses' and servants' residences are in the centre and under the supervision of the matron, with lavatories, bath rooms, &c., complete. The cooking kitchen, sculleries, pantries, stores, &c., are at the rear of the administrative block, centrally placed and easy of access from the male or female portion of the block. Adjoining the central or administrative block, and off the main corridor, are placed the receiving wards for male and female patients, with lavatories and bath-rooms, supplied with hot and cold water, into which the patient is taken previous to being sent by the medical man into the pavilion wards. The pavilions are arranged nearly north and south, and all of two storeys, and have fireproof floors, there being no direct internal communication between the two floors. The upper floor is reached by an external staircase, opening from the corridor; the hydraulic lifts are provided at each staircase for raising patients from the ground to first floor. A long, wide corridor leads left and right to the different rooms, which comprise eight wards for twenty-four beds each, eight wards for five beds each, eight wards for two beds each for special cases. The large wards are all overlooked from the nurses' duty room or kitchens by a small window. Two labour wards are provided for five beds each, and two separate wards of one bed each at the end of the north female pavilion, to be used for maternity cases. The large wards are admirably lighted, all angles and corners are rounded to prevent accumulation of dust, and the floors are laid

with marble mosaic. Special attention has been given to the sanitary arrangements.

THE VENTILATION

is not dependent on mechanical means, and for simplicity and efficiency is very marked, special aspirating flues having been formed, which produce an up current, and draw off the vitiated air. Steam radiators are employed in cases specially designed to admit fresh air, which enters warmed into the wards at a slow velocity, calculated to change the temperature in each ward three times per hour. Inlets for cold, fresh air are provided, and admit of adjustment, and each large ward has two centrally-placed open fire-stoves, independent of the steam radiators, with stacks of flues, designed by the architect, to be swept externally, so that patients when in bed can enjoy the view of an open fireplace. Access and egress fire-proof staircases are provided to each block, to be used in case of fire, and balconies are erected at each end of the pavilions for the use of convalescent patients. The lighting is entirely by electricity, no gaspiping having been laid. In connection with the fitting up of the infirmary, Messrs. J. Hands and Son have supplied engines and boilers; the Griffin Foundry Company, the hot and cold water appliances; and Messrs. Hassall and Singleton, the kitchen fittings. The electric lighting arrangements have been carried out by the Electric Construction Company under the supervision of Mr. W. J. Talbot; the finishing of the wards has been entrusted to Messrs. J. Parker and Co.; and the laundry has been fitted up by Messrs. Bradford and Co., of Manchester. Messrs. Hill and Son, of Wolverhampton, have provided the water supply pipes.

Surveying and Sanitary Notes.

THE opening of the new waterworks and the technical schools at Bilston took place recently. The new works include engine-house, well-house, boiler-house, machine-fitting and repairing shop and stores; while the plant consists of two boilers, two engines, and two sets of pumps, with the usual accessories. All the machinery is in duplicate, in case of a breakdown. The total cost of the scheme is £45,000, and the work has been designed and carried out by Mr. Baldwin Latham, of Westminster, while Mr. C. L. N. Wilson (the town surveyor of Bilston) has acted as resident engineer.

COLONEL DURNFORD, a Local Government Board inspector, recently held an inquiry at Levenshulme with reference to an application of the Levenshulme Urban District Council for the Board's sanction to borrow £3850 for works of private street improvement. The Clerk explained that in consequence of numerous complaints respecting the condition of Clare Road, Griffin Grove, Henderson Street, Berrie Grove, May Grove, and Manchester Street, the Council had called upon the owners of property in those streets to pave them, and put them in repair. The notices had now expired, and the work would be proceeded with upon the necessary borrowing powers being obtained.

A VISIT of inspection was paid recently by a party of the vestrymen of St. Mary, Newington, to the three depôts established by this vestry for the disposal of the street refuse of the parish, which amounts on the average to between 50,000 and 60,000 tons annually. The Vestry Clerk, Mr. L. J. Dunham, who has organised the system, was able to show that a saving of from £3000 to £4000 a year is made by his method as compared with the dust destructor. The cost varies in London from just over 2s. per ton, which is that of the Newington method, to a little over 4s. per ton, expended by other vestries. At the three depôts visited a different system prevails. At Meopham, in Mid-Kent, the dust is mixed with stable manure

and, under the name of the Newington mixture, is sold to market gardeners as a top dressing. At Sevenoaks, the sweepings of the roads are turned into a deep pond which exists on a freehold estate of twenty-five acres, belonging to the vestry, and eventually, when the pond has been filled, the ratepayers will have obtained several acres of land fit for cultivation. At another dépôt, at Longfield, the dust is screened, and profitably disposed of as breeze to brickmakers; while out of other classes of rubbish a compo is formed, which has taken the place of brick and stone in the building of the dépôts.

At a recent meeting of the Dereham Urban Council held to consider the question of the water supply, the quality of the water was pronounced to be excellent, and it is only a further supply which is needed.—It was suggested by the Surveyor to sink the well to a further depth of 90ft., the depth of the well at the present time being 95ft. The probable

cost of sinking well and new pump, &c., would amount to £1600.—The Chairman remarked that since 1894 they were aware that the water supply was very limited. The pump has now to be worked for twenty hours a day in order to supply sufficient water to meet the demand, which ought to be pumped in ten or twelve hours. The Chairman also pointed out that the Council is bound to supply the town with the water required.—A long discussion took place as to the experiment on boring four holes in the iron cylinder to see if this would increase the amount of water sufficient for the required supply.—Eventually the Chairman moved that the matter be adjourned for six weeks, and the Surveyor be instructed to tap the cylinder at the red sand and flint strata, just above the concrete, about 90ft. from the surface, and produce a report at the October monthly meeting.—Mr. Jex seconded.—Mr. Pearse moved as an amendment that some competent man be consulted before the holes were bored as to the advisability and possibility of obtain-

ing water from this course.—This was seconded by Mr. Merry, and, on being put to the meeting, the resolution was carried by the Chairman's casting vote.

THE Ilkeston Corporation, boring for water at Little Hallam, has now reached a depth of over 1750ft. Water of an excellent quality was met with at a depth of about 800ft., in the first millstone grit; but it was the opinion of geologists that a greater supply would be found in the second millstone grit (the existence of which had been proved by the recent borings at Ruddington), and the Corporation accordingly resolved to bore to a depth not exceeding 1800ft. Within 50ft. of that depth, however, no further water has been reached, although the boring has now penetrated quite 50ft. into a rough sandstone, after passing through a great depth of blue bind. The Corporation is not now very sanguine of meeting with more water within the depth it has been decided to bore.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Sept. 10	Castleton—Walls to Danby Churchyard	Guardians	G. Meggeson, Castleton.
" 10	Merthyr Tydfil—Vagrant Wards at Workhouse	District Industrial and Provident Society Limited.	T. Roderick, Ashbrook House, Clifton-street, Aberdare.
" 10	Workington—Additions, &c., to Central Stores	Corporation	W. G. Scott and Co., Victoria-buildings, Workington.
" 10	Glasgow—Public Washhouse	Restoration Committee	Office of Works, 64, Cochrane-street, Glasgow.
" 11	Llanfihangel-y-Creuddyn—Restoration of Church Tower	Blakey Moor Co-operative Society Ltd.	J. P. Evans, Vicarage, Llanfihangel-y-Creuddyn.
" 11	Blackburn—Shop Premises	Hardwick Colliery Company	Simpson and Duckworth, Richmond-chambers, Blackburn.
" 11	Chesterfield—Four Semi-Detached Cottages, &c.	T. Nicholl	J. W. Fearn, 31, Devonshire-street, Chesterfield.
" 11	Clones—Four Houses		T. Elliott, Architect, Enniskillen.
" 11	Kilbonane, Ireland—Church		W. H. Hill and Son, 28, South-mall, Cork.
" 11	St. Stythians, Cornwall—Sunday School Buildings		William Swift, 23, Lemon-street, Truro.
" 13	Camberwell, S.E.—Railing and Gates	Vestry	O. S. Brown, Vestry Hall, Camberwell.
" 13	East Preston, Sussex—Bricklayer and Plumbers' Work	Workhouse Guardians	H. Howard, Town Offices, Littlehampton.
" 13	Nailsworth—Church, &c.		Vale and Kingsford, Surveyors, Gloucester.
" 13	Carlisle—Teachers' Rooms, &c., Caldewgate Schools	School Board	Johnstone Brothers, 39, Lowther-street, Carlisle.
" 13	Folkestone—Fifty Artisans' Dwellings	Corporation	Borough Engineer, 29, Dover-road, Folkestone.
" 13	Beaumaris—Additions to County School		J. Owen, Architect, Menai Bridge.
" 13	Lynton, Devon—Lighthouse, Dwellings, &c., at Foreland	Admiralty	C. A. Kent, Trinity House, London, E.C.
" 13	Ripley—Extension of School Buildings	School Managers	F. H. Tuke, Vicarage, Ripley.
" 13	Selly—Bacon Factory	Yorkshire Bacon Curing Company Ltd.	Company's Offices, 1, Abbey-place, Selly.
" 14	Halifax—Confectionery Works		M. Hall, 29, Northgate, Halifax.
" 14	Shibden, near Halifax—School at Salterlee	West Suffolk County Council	J. F. Walsh, Lancs. & Yorkshire Bank-chambers, Halifax.
" 14	Euston, near Thetford—Widening "Rectory" Bridge	Commissioners	W. R. Johnson, Estate Office, Euston.
" 14	Kingstown, Ireland—Alterations, &c. to Town Hall	G. B. Unwin	J. Donnelly, Town Clerk, Tower Hall, Kingstown.
" 14	Sheffield—Ten Dwelling-houses, Bridgehouses	T. Lynes	J. Clark, 55, Norfolk-street, Sheffield.
" 14	Dorchester—Stables, Prince's-street	Corporation	Crickmay and Sons, 77, St. Thomas-street, Weymouth.
" 14	Maidstone—Additions to Free Library, St. Faith-street	Ffaldau Collieries Company	A. W. Smith, 86, Week-street, Maidstone.
" 15	Pontycymer, Wales—Forty-five Cottages	Urban District Council	Colliery Offices, Pontycymer.
" 15	Aylesbury—Terrace Retaining Walls	Industrial Co-operative Society	J. H. Bradford, 2, Rickford's-hill, Aylesbury.
" 15	Ipswich—Staircase, Wing, &c., at Hall	North-Eastern Railway Company	Eade and John's, Cornhill-chambers, Ipswich.
" 15	Saltburn—Alterations to Bridge	Corporation	W. J. Cudworth, Company's Engineer, Darlington.
" 15	Middleton—Station Meter House at Gasworks	School Board	T. Duxbury, Gas Manager, Town Hall, Middleton.
" 16	Falmouth—Schools, Alterations, &c.	Corporation	W. Jenkins, Clerk, Falmouth.
" 18	Chorley—Road Materials	Committee	J. Mills, Town Clerk, Chorley.
" 18	Wadsley, Yorks—Wash-house, Engine-room, &c.	Town Council	—Cotterill, Wadsley Asylum, Sheffield.
" 18	Plymouth—Underground Convenience	The Hartlepool Co-operative Society	J. Garry, 47, Church-street, West Hartlepool.
" 18	West Hartlepool—Premises, Park-road	Infirmary Committee and Guardians	W. Owen, Cairo-street-chambers, Warrington.
" 20	Warrington—Infirmary Buildings	Lancashire Asylum Board	J. Beaman, Delph Farm House, Winwick, near Warrington.
" 20	Winwick—Asylum	Urban District Council	E. P. Stephenson, Council Offices, Llandudno.
" 20	Llandudno—Electric Lighting and Refuse Destructor Buildings		
" 21	London—Erection of Camp Sheathing, Lett's Wharf, Lambeth.	Commissioners of Sewers	Guildhall, London, E.C.
" 21	Northwram, near Halifax—Residence		J. T. Walsh, Lancs. & Yorks. Bank-chambers, Halifax.
" 21	Portsmouth—Alterations, &c., to Board School	School Board	A. Bone, Cambridge-junction, Portsmouth.
" 21	Lewisham—Fire Brigade Station, High Street	London County Council	C. J. Stewart, Clerk, Spring Gardens, S.W.
" 25	Westbury-on-Severn & Dymock, Glos.—Police Stations	Glos. Standing Joint Committee	M. H. Medland, 15, Clarence-street, Gloucester.
" 28	London, F.C.—Alterations to Underground Convenience	Streets Committee of Commissioners of Sewers.	Engineer to Commission, Guildhall, E.C.
No Date.	Pontardawe, Wales—Infant School	Llanguicque School Board	W. W. Williams, Island-chambers, 63, Wind-st., Swansea.
"	Canklon, near Rotherham—Mission Church		E. J. Hubbard, Architect, Moorgate-street, Rotherham.
"	Hereford—Alterations to Theatre Royal		W. W. Robinson, 10, King-street, Hereford.
"	Leeds—Excavation in Sunny Bank	General Infirmary	W. H. Thorp, 61, Albion-street, Leeds.
"	Market Drayton—Fountain	School Board	G. A. Craig, Architect, Market Drayton.
"	Petersfield—Schools at Sheet	Edison and Swan United Electric Light Company, Limited	H. T. Keates, Architect, Petersfield.
"	South Beawell—Alterations, &c.		T. Hanning, Northern Assurance-buildings, Collingwood-street, Newcastle-on-Tyne.
"	Wimbledon—Roof Tiling		—Hyde, 52, Brayard's-road, Peckham.
"	Ballygowan, Ireland—Re-roofing, &c., Church	Home and Colonial Stores, Limited	J. Gibson, Ballygowan.
"	Belfast—Branch Stores	Turnbull Bros.	R. Keir, 20, George-street, Edinburgh.
"	Burnopfield—Four-stalled Stable and Pit-house		Turnbull Bros., Leazes, Burnopfield.
"	Clacton-on-Sea—Pair of Villas and Five Houses		J. H. Harman, the Estate Office, Marine-parade.
"	Clown—Two Houses		W. H. Wadstaff, Architect, Saltergate, Chesterfield.
"	Earby—Station Hotel	Mrs. Hartley and others	C. Parsons, 9, Grimshaw-street, Burnley.
"	Featherstone—Three Houses; and Two Houses and Shop		W. H. Fearnley, Architect, Featherstone.
"	Gilcrux, Cumberland—Plastering and Slating		J. Clark, Gilcrux.
"	Hucknall Torkard—Nurses' Home		A. N. Bromley, Prudential-buildings, Nottingham.
"	Lowick, Northumberland—Restoration of National School		Vicar, Lowick.
"	Ramsdale—Four Cottages, St. Luke's-avenue	Gas and Water Committee	W. A. McIntosh Valon, Engineer.
"	Rhayader—Wesleyan Church		F. G. Evans, Castle-road, Buith, Wells.
"	Rochdale—Additions in Lower Tweeddale-street	Rochdale Carriage Company Limited	Smith and Cross, Town Hall-chambers, Rochdale.
"	Writhlington, near Bath—Nineteen Houses and Shop	Radstock and Clondown Breweries and Hotel Company Limited	J. Ace Benyon, Architect, Coleford, near Bath.
"	York—House, The Mount	A. R. Butterworth	A. A. Gibson, 8, Cambridge-crescent, Harrogate.
ENGINEERING—			
Sept. 10	Hindley—Pitch Boiler	Urban District Council	S. Holt, Clerk, Council Offices, Hindley.
" 10	Perth—Extension of Tramways	Perth and District Tramway Company	G. P. K. Young, 42, Tay-street, Perth.
" 11	Bristol—Cast-iron Socket Pipes	Waterworks Company	A. J. Alexander, Secretary, Bristol.
" 11	Chapel-en-le-Frith, Lancs.—Bridge Works over River Noe	Rural District Council	Sterling and Swann, Town Hall, Chapel-en-le-Frith.
" 13	Glasgow—Railways	Caledonian Railway Company	G. Graham, C.E., Buchanan-street Station.
" 13	Basingstoke—Well and Adits, &c.	Corporation	H. Ross, 8, Victoria-street, Westminster.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—(Continued).			
Sept. 14	India Office, Whitehall, S.W.—Travelling Gasholders...	Secretary of State for India	Director-General of Stores, India Office, Whitehall, S.W.
" 14	Smethwick—Oxide of Iron and Spent Oxide	Gas Committee	Manager, Gasworks, Smethwick.
" 15	Accrington—Filter-beds, Covered Reservoir, Engine-house, &c.	District Gas and Water Board	Board Offices, Accrington.
" 16	King's Lynn—Bridge over River Nar	Freebridge Rural District Council	R. H. Aldham, Clerk, King's Lynn.
" 17	Worcester—Heating at County Hall, Judges' Lodgings, &c.	Joint Committee and County Council	County Surveyor's Office, Pierpoint-street, Worcester.
" 20	Whittingham, Lancs.—Electrical Plant at Hospital, &c.	Lancashire Asylums Board	Simpson and Duckworth, Richmond-chambers, Blackburn.
" 20	West Ham, E.—Electric Light Wiring at Public Library	County Borough	Clerk, Town Hall, West Ham, E.
" 21	Barking, Essex—Electric Lighting	Urban District Council	W. C. C. Hawtayne, Mansion House-chambers, 20, Bucklers-bury, E.C.
" 21	Port Elizabeth, Cape Colony—Electric Lighting	Town Council	Davis and Soper, 54, St. Mary-axe, London, E.C.
" 22	Llandudno—Electric Lighting Works	Urban District Council	A. H. Preece, 39, Victoria-street, Westminster.
" 24	Pontefract—Engines and Boilers	Guardians	Greaves and Co., Architects, Corn Market, Pontefract.
" 25	St. Alban's—Heating and Ventilating Lithographic Printing Works, Campfield.	Oxford Smith Limited	G. P. Smedley, 110, St. Martin's-lane, Charing Cross, W.C.
Oct. 7	Hull—Engines and Pumps	Corporation	F. J. Bancroft, Town Hall, Hull.
Nov. 5	Hull—Electrical Equipment of Tramways	Corporation	A. E. White, City Engineer, Town Hall, Hull.
No date.	Harrington—Sinking and Walling a Well		A. Kendall, Harrington.
"	Dunfermline—Electric Light at Muirbeath Colliery		Muirbeath Colliery, Dunfermline.
IRON AND STEEL—			
Sept. 13	London, E.C.—Steel Oil Drums	Corporation of Trinity House, London	C. A. Kent, Secretary, Trinity House, London, E.C.
" 15	Nelson, Lancs.—Cast Iron Pipes	General Purposes Committee	B. Ball, Borough Engineer and Surveyor.
" 15	Christiana—Rails and Fishplates	Norwegian State Railway Administration	Baneditrektrens Kontor, Christiania.
No date.	Ramsgate—Iron Fence	Gas and Water Committee	W. A. McIntosh Valon, Engineer.
PAINTING AND PLUMBING—			
Sept. 10	Cardiff—Oils and Paints, &c.	Guardians of Workhouse and Ely Schools	A. J. Harris, Clerk, Queen's-chambers, Cardiff.
" 13	Blaydon-on-Tyne—Painting	Co-operative Society	Offices.
" 20	Bentley-with-Arksey, Yorks.—Painting School Bldgs., &c.	School Board	Parkinson, 53, Bentley-road.
No date.	Selby—Painting Thirty Houses		T. C. Fawcett, Onsegate, Maltkin, Selby.
"	Wrexham—Painting Twelve Houses		Squire, 10, Temple-row, Wrexham.
ROADS—			
Sept. 10	Guisborough—Street-making	Urban District Council	B. Dunning, Surveyor, Guisborough.
" 11	Denton, Lancs.—Paving, Sewering, &c.	Urban District Council	G. H. Newton, Council's Surveyor, Market Place, Denton.
" 11	Leamington—Road Materials	Corporation	Borough Engineer.
" 11	Wrexham—Road across Belle Vue Estate	E. A. Hughes	J. H. Swainson, 26, Holt-street, Wrexham.
" 11	Ogmore and Garw, Wales—Limestone, &c.	Urban District Council	H. D. Williams, Surveyor, Blackmill.
" 11	Bromley, Kent—Road-Widening and Retaining Wall	Urban District Council	Council's Surveyor, District Council Offices, Bromley.
" 11	Pontycymer, Wales—Street Works	Urban District Council	H. D. Williams, Surveyor, Blackmill.
" 13	Hornsey, London—Hard Wood Paving, &c.	Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 13	Camberwell, S.E.—Paving, &c.	Vestry	O. S. Browne, Vestry Hall, Camberwell.
" 13	Maidenhead—Broken Clew Hill Granite	Town Council	P. Johns, Guildhall, Maidenhead.
" 14	Cork—Limestone and Rubble Ballast	Harbour Commissioners	J. Price, Engineer to Commissioners, Cork.
" 14	Upper Edmonton, London, N.—Guernsey Granite Spalls at Workhouse	Guardians	F. Shelton, The Grange, Lower Tottenham.
" 14	Wealdstone—Road Works	Urban District Council	B. Wyand, Surveyor, Council Offices, Wealdstone.
" 14	Epsom—Road Works	Rural District Council	H. D. S. Wood, 157, Wool Exchange, E.C.
" 15	Bexley, Kent—Materials and Pipe Sewer, &c.	Urban District Council	E. E. Boulter, Council Offices, Bexley Heath.
" 15	Camberwell, S.E.—Tar-paving at Workhouse	Guardians	The Clerk, 29, Peckham-road, S.E.
" 15	Chacton—Paving and Road Works	Urban District Council	A. R. Robinson, Surveyor, Town Hall, Clacton-on-Sea.
" 17	Easingwold, Yorks.—Widening and Fencing	Rural District Council	G. Thomson, District Surveyor, Easingwold.
" 17	Preston—Levelling, Paving, &c.		Borough Engineer, Town Hall, Preston.
" 18	Heath Town—Paving, &c.	Urban District Council	R. E. W. Berrington, Civil Engineer, Wolverhampton.
" 21	Rowhedge, Essex—Brick Kerb and Gutter	Lexden and Winstree Rural District Council.	J. Ennals, Surveyor, Copford, Colchester.
" 28	London, W.C.—Supply of Horses, Vans, &c.	St. Martin-in-the-Fields' Vestry	C. Mason, St. Martin's Town Hall, Charing Cross, W.C.
No date.	Enfield—Making Calsfield-road, Enfield Lock		Messrs. Cawter, Surveyors, Cheshunt.
"	Harrogate—Road and Sewers	Stonefall Park Estate Company	Whitehead and Smetham, Albert-street, Harrogate.
"	Bexley, Kent—Road on Maypole Estate		Jennings and Fell, 3, Broad-street-buildings, London, E.C.
"	Cardiff—Roads, &c., Preswylfa Estate, Canton		J. P. Jones, Richards, and Bugden, 18, Mary-street, Cardiff.
"	Culter, Aberdeen—Roads		J. A. Beattie, 21, Bridge-street, Aberdeen.
SANITARY—			
Sept. 10	Whitehaven—Pipe Sewer	Rural District Council	G. Boyd, 33, Queen-street, Whitehaven.
" 10	Ashford—Sewer, Canterbury-road	Urban District Council	Surveyor, North-street, Ashford, Kent.
" 11	Bromley, Kent—Sewerage and Surface Drainage Works	Urban District Council	Council's Surveyor, District Council Offices, Bromley, Kent.
" 13	London, N.—Sewers, &c.	Hornsey Urban District Council	E. J. Lovegrove, Council's Engineer.
" 13	Wellington, Salop—Drainage Works, &c.	Urban District Council	Council's Offices, Walker-street, Wellington.
" 14	Farnworth, Lancs.—Emptying Ashpits	Urban District Council	D. Crossley, Clerk.
" 14	Southampton—Drainage Works	Corporation	Borough Engineer, Municipal Offices, Southampton.
" 15	Bexley, Kent—Sewers	Urban District Council	E. R. Boulter, Council Offices, Bexley Heath.
" 15	Stretford, Manchester—Drain Tiles	District Council	—Royle, Surveyor, Council Offices, Old Trafford.
" 15	Felixstowe—Sewering	Urban District Council	Town Hall, Felixstowe.
" 20	Basford, Notts—Removal of Night Soil	Rural District Council	C. J. Spencer, Clerk, Public Offices, Basford.
" 21	Shoreditch—Brick and Pipe Sewers	Vestry	J. R. Dixon, Town Hall, Old-street, E.C.
" 23	London, N.W.—Removal of Slop	St. John's Vestry, Hampstead	Surveyor, Vestry Hall, Hampstead.
" 28	London—Alterations to Underground	Commissioners of Sewers	Guildhall, London, E.C.
No date.	Keighley—Drain, &c., at Lane End, Cross Roads		G. Town, 14, West Devonshire-street, Keighley.
"	South Moor, near Stanley—Sewerage Works	Townley Building Estate	T. C. Nicholson, Architect, Blaydon-on-Tyne.
TIMBER—			
Sept. 13	Dundalk—Sleeper Blocks	Great Northern Railway Co., Ireland	T. Morrison, Secretary, Amiens-street Terminus, Dublin.
No date.	Fort William, Scot'and—Hill Fencing		N. B. Mackenzie, British Linen Bank-buildings, Fort William.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 14	Ipswich—Design for Higher Grade School (Local)	Not stated.	J. H. Hume, Clerk to School Board, Ipswich.
" 22	London, S.W.—Designs for Public Baths	£100, £50, £25...	Battersea Vestry, Lavender Hill, S.W.
" 25	Blaenau Ffestiniog, Merioneth—Plans, &c., for County Police Buildings	£15 15s.	Standing Joint Committee.
" 30	Skipton—Designs for Cottage Hospital	£15, £5 ...	Cottage Hospital Committee.
Oct. 1	Lower Bevington, Cheshire—Sewerage Scheme	£50, £35, £20 ...	Urban District Council.
" 1	Ludlow—Electric Lighting Scheme	£20 ...	Corporation.
" 1	Morecambe—Plans, Estimates, &c., for Sewerage Scheme	£100 ...	Urban District Council
" 8	Leeds—Designs for Meat Market and Abattoir	£100, £50, £25...	Corporation.
" 13	Dorking—Plans for Infirmary	£15, £5 ...	Guardians of Dorking Union.
" 30	Uxbridge—Schemes for Sewerage and Sewage Disposal	£45 (if combined) £15 for Eastcote and £25 for Northwood (if separate schemes).	Rural District Council.
Nov. 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
1898.			
Jan. 1	Newcastle-on-Tyne—Infirmary (Local)	(No First.) £150, £100, £50	Secretary, Building Committee, Newcastle.
" 30	Carlton, Victoria, Australia—Plans for Children's Hosptl.	£100, £50, £25...	J. Nicholson, Hon. Sec., Pelham-street, Carlton, Australia.
Feb. 28	New York—Model Sun Dial in Plaster	500 dol., 250 dol.	Sec. National Sculp. Soc., 215, West 57th-street, New York.
No date.	Carlisle—Design for Board School	£20, £10...	Carlisle School Board.

Professional Items.

ABERDEEN.—A handsomely painted window, in memory of the late Professor Robertson Smith, was last week unveiled at King's College Chapel, Aberdeen. Designed by Mr. A. Marshall Mackenzie, the window has four principal lights, each of which is occupied by a figure of one of the Hebrew prophets, those represented being Isaiah, Jeremiah, Ezekiel, and Daniel. In the trefoils there are representations of angels holding scrolls in their hands; and all the figures were designed by Sir Edward Burne-Jones.

The formal ceremony of laying the foundation stone of the new offices for the Aberdeen Parish Council in Union Terrace took place recently. The new offices, which have been already described, are to be erected close to the new School Board buildings. The site cost £3700, and apart from furnishings, the new offices will entail an additional outlay of £6877.

BIRMINGHAM.—The erection of the new meat market in Bradford Street is rapidly approaching completion; and now that the scaffolding is being removed some idea may be obtained of the extent of the building, and of its architectural features. The Public Works Department is engaged in widening the roadways and laying down the footpaths around the market, and considerable progress is being made with the fitting up of the building. It is expected that the formal opening of the market will take place about the end of this month.

After undergoing a thorough renovation, St. Paul's Church has been reopened. An effective scheme of decoration has been carried out by Messrs. Sears and Son, under the direction of Messrs. Gately and Parsons, the architects.

CAMPELTOWN.—The memorial stone of Campbelltown Free Library and Museum was laid two or three days ago. The cost of the Library and Museum is estimated at from £8000 to £10,000. Situated at the corner of Harlem and St. John Streets, the building has a frontage to the bay of 93ft., and to St. John Street of 137ft. It is L-shaped in plan, the ground enclosed, open to Shore Street, being laid out as a garden to form an adjunct to the Museum for the exhibition of archaeological and other exhibits not requiring cover. Internally the buildings are divided into a library or book store, capable of containing 10,000 volumes; a ladies' reading-room, general reading-room, a museum or picture-gallery, and a general hall or news-room. This latter is the general vestibule, and gives independent access to each department. The museum or picture-gallery, as befits its purpose, is finished in the simplest possible way, lighted primarily from the roof; small side windows, which may be covered when the room is used as a picture-gallery, afford opportunities of suitably lighting cases containing smaller exhibits. Externally the building is simple but effective in style. The design might be described as Early Scottish Renaissance.

COVENTRY.—Consequent upon the opinion expressed at the City Council meeting some time ago, the Electric Lighting Committee of the Corporation has considerably modified the proposals which it then submitted. The Committee will on the next occasion recommend that the electric lighting of the streets be not proceeded with, thus saving £2000, and that a further saving of about £5000 be effected by only laying cable mains according as the necessity arises in certain directions. By these proposals the suggested expenditure of £37,900 will be reduced to £31,000.

ECCLESALL.—At the special meeting of the Board of Guardians, Mr. J. D. Webster, architect, of St. James' Street, submitted plans of the proposed administrative block and further hospital accommodation, and it was resolved to adopt the recommendation of the Building Committee, and for the present to only erect

the administrative block and one small hospital, the other work to be carried out when the necessity arises. It was further resolved that the clerk forward the plans of such to the Local Government Board for approval.

EXETER.—In an address by Mr. James Hine, architect, of Plymouth, and President of the Devonshire Association, which we reported last week, mention was made that the west front of Exeter Cathedral was being largely renewed under the direction of Mr. J. L. Pearson, R.A. We learn that this work is not being carried out under Mr. Pearson, but by the direction of a local architect.

GLASGOW.—The past session of the Building Construction Classes at the High (Evening) School has been singularly successful. Twenty-six elementary, and nine out of ten advanced students, who were presented, have passed the respective stages in the recent Science and Art examinations. In addition to certificates, the Glasgow School Board has granted class certificates of proficiency to 26 elementary, 10 advanced, and 4 honours students. The opening lecture of the new session was delivered yesterday.

HENGOED.—The foundation stone of the fabric of the new board-room and offices now being erected for the Gelligaer and Rhigos District Council at Hengoed, was laid recently by Mr. Matthew Truran, J.P., chairman of the Council. Mr. James Jones, the Council's surveyor, has prepared the plans. Messrs. Mainwaring and Davies, of Llanbradach, are the contractors, their tender for the construction of the building being £925.

ILKLEY.—A new Constitutional Club at Ilkley has been opened by Mr. Akers-Douglas. The new premises are situate in Cunliffe Road, and are a great improvement on the accommodation afforded by the old building. The structure stands three stories high, and is substantially built of stone. There is a large lecture hall, 36ft. by 26ft., suitable for meetings, and immediately overhead a well-lighted billiard-room of the same capacity, with two tables. In addition there are smoking, reading, and card rooms. Messrs. Dean Bros., contractors, of Ilkley, erected the building from plans drawn by Messrs. Adkin and Critchley.

LINCOLN.—At a special meeting of the Visiting Committee of the Asylum, held at Lincoln, to receive and consider tenders for certain necessary works, which had been estimated to cost £6125, and for which the several local authorities approved of an expenditure not exceeding £7000, a resolution was passed by the Building and Sanitary Committee, recommending a further expenditure not exceeding £2000, in order to complete the works approved by the Lunacy Commissioners and the Home Secretary. The extra £2000, it was explained, was required, because it was found the work estimated at £6125 could not be kept within the £7000.

LLANTHRITHYD.—Llantrithyd Parish Church, near Cowbridge, was re-opened after restoration, a few days ago. The church of Llantrithyd dates from the twelfth century. The only fragments of this period now remaining are the semicircular tower arch and the holy water stoup, the bowl of which was found embedded in the south wall of the nave. The church is noted for its monuments, the earliest of which dates from the thirteenth century, and represents a female figure with its feet resting on a greyhound and its head beneath a trefoiled canopy, all in excellent preservation. The principal monument in the chancel is a large altar tomb, richly carved and decorated, which was erected by Elizabeth Mansell in 1597. There is also some interesting plate belonging to this church, including a silver communion cup and paten cover—date, 1576. The fifteenth century chancel screen has been repaired. On moving the paint and varnish from the old oak, a good deal of the early decoration in blue, gold, and red was brought to

light, and can now be seen. The work just completed has been carried out by Mr. W. James, of Fommon, under the direction of Mr. G. E. Halliday, the diocesan surveyor for Llandaff.

MORLEY.—Memorial stones of a new Primitive Methodist chapel and Sunday school at the Birks, Morley, have been laid. The building, which will be in the classical style of Architecture, will cost about £1250. The school will form the basement, and provide accommodation for 300 scholars, and the chapel will provide sitting accommodation for 250.

NEWCASTLE-UNDER-LYME.—The commemoration-stone of an institute in connection with St. George's parish was laid a few days ago. The site comprises 1666 square yards, with frontages to North and Hassell Streets. The building will be of Gothic design, of red brick, with stone dressings, and will have a low tower over the main entrance. The large hall or church-room will be fitted with movable platform and seats, and also as a gymnasium. Class-rooms, reading-room, billiard-room, kitchen, &c., are also provided. The architects are Messrs. R. Scrivener and Sons, of Hanley, and the contractor is Mr. S. Wilton, jun., of Newcastle. The cost is estimated at £2570.

NEWCASTLE.—Mr. John Hall, of Newcastle, shipowner, has offered to give £100,000 to build a new infirmary for Newcastle, conditionally upon a site being procured on the Castle Leazes or recreation grounds upon the outskirts of the city; and also that the subscribers of the £100,000 already raised to erect a new infirmary on the site of the existing institution allow their money to be devoted to the maintenance of the infirmary.

NORTHWICH.—At the meeting of the Northwich Urban Council last week the clerk, Mr. J. A. Cowley, reported that the Science and Art Department had intimated that they would contribute £1000 as a building grant towards the Verdin Technical Schools. The County Council proposed to make a grant of £678 in aid of the institution. The Science and Art Department had asked for a statement of the expenditure, and this had just been prepared. It showed that the sum already paid to the builder, architect, and clerk of works was £5940, and to the two former a further £2000 had to be paid. This made the total expenditure on the actual building £8140, towards which £3500 was received from the Verdin Trust Fund—a sum of £26,000 devoted by Sir Joseph Verdin to the promotion of technical education and the endowment of various institutions. Thus, after receiving £1000 from the Department, Sir Joseph will have to provide £3640. The fixtures, furniture, &c., had cost £714. It was decided to make formal application for the grants.

NOTTINGHAM.—The work of reconstruction and alteration which has during the past four months been in progress at the Nottingham Theatre Royal, is now rapidly nearing completion. Externally, the appearance of the theatre has undergone little change.

OWSTON.—The fund for the restoration of Owston Church tower has now reached £533 About £100 is still required to carry out the work, which is about to be commenced by Mr. G. Fisher, of Carcroft.

RYTON, NEWCASTLE.—The foundation stone of a block of buildings which are to be known as "The Robert Simpson Memorial Homes for Aged Miners," was recently laid by Mrs. Simpson. The Stella Company has given the site, which consists of 800 square yards, and the contract price for the building is £1220. The estimated cost of the buildings, including the value of the site, is £1350. The site abuts on the main turnpike from Newcastle to Hexham, and is situated at a place known as Bar-moor, about a mile west of the village of Ryton. The Homes have been designed by Mr. Jas. Archbold, engineer to the Stella Coal Company, and will be built by Mr. Peter Fellowes, Greenside.

Enquiry Department.

GOTHIC VAULTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—May I trouble you through your Enquiry Department to give me the names of any books dealing with the method of constructing the wooden centering to a Gothic vault, and also as to the setting out of the stonework for same. There seem plenty of works dealing with this sort of thing when finished, but I know of none on the above subjects.—Yours truly,

G. H. B.

You will find the information desired in the "New Guide to Masonry, Bricklaying, and Plastering: Theoretical and Practical," edited by Robert Scott Burn, architect, and published by A. Fullerton and Co., of Edinburgh, and 18, Newgate Street, London. This book contains the fullest details for setting out and working the stonework of Gothic groins and vaults, as well as suggestions as to the making of the centering for the same. To properly understand the latter, however, it seems to us that a thorough knowledge of constructing an ordinary centre is necessary, and for this you will find all that is required in "Tredgold's Carpentry" (revised), published by "Spon," or Crosby, Lockwood, and Co., or in Cassell's Technical Educator, or any standard work on carpentry and joinery.

Correspondence.

CHURCHES IN THE ARCTIC REGIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—On my return from five or six weeks wanderings amongst the way-side Calvaries of north-western Finisterre, I notice in a back issue (July 21st) of THE BUILDERS' JOURNAL a paragraph relative to a church recently built at Blacklead Island, in Cumberland Sound, of whalebone and sealskin, and the remark is passed that this is, perhaps, the only church existing within the Arctic Circle. That is not a fact, however, although it is possible it may be the only church of the kind (of the same materials), as such structures are necessarily only very temporary. I remember precisely the same kind of edifice erected in the land of the wandering Eskimo, some few years ago, that did very well so long as summer lasted, but when winter, and its dearth of food to man and beast came along, the sleigh dogs attacked it, and long before daylight (the continual darkness exists from November 21st to the 21st day of the next January) had ate the whole of it up.

I have seen a number of permanent churches, and very good ones too, some of them far up beyond the line of the Arctic Circle. At Tromsø (69 deg. 38 north lat.) for instance, a city of some 6000 inhabitants, there are several churches, particularly a fine Roman Catholic one. It is the seat of a Bishopric. Again, at Hammerfest (70 deg. 40 north lat.), the most northerly town in the world, a place of about 3000 souls, there are two churches: one with a low spire is near the landing-place, besides an old stone mortuary chapel in the cemetery, situated on high ground just outside the town.

Yours faithfully,

HARRY HEMS.

MESSRS. E. SAUNDERS AND SON, surveyors, 6, Bishopsgate Street Without, are superintending the carrying out of various structural alterations at 3, Brewer Street, Clerkenwell.

EFFORTS are now being made by the Willesden Board of Guardians to acquire a site near Willesden Green, and erect a workhouse there at an estimated cost of £50,000.

THE Finance Committee of Liverpool City Council has passed a recommendation to issue £2,500,000 Corporation Stock, to cover the cost of electric light, the acquisition of the tramways, the introduction of electric trams, and for other public works.

Trade and Craft.

A REMARKABLE CATALOGUE.

MESSRS. YOUNG AND MARTEN, STRATFORD.

We have been favoured with an advance copy of the remarkable catalogue about to be issued by Messrs. Young and Marten, the well-known builders' merchants. The development of the trade catalogue, of late years, verges upon the phenomenal. Within recent remembrances, firms—even of eminence—were content with a modest volume, scanty in detail, and bald of illustration. A more or less accurate list of prices, with a few cheap line-blocks, satisfied the general idea. But we have changed all that. Nowadays, the trade catalogue of a leading house assumes the dimensions of an encyclopædia, and is sent forth with all the excellence that costly care can secure. From time to time, we have suffered many things from catalogues and their necessary study. Good or bad, the conscientious reviewer must wade through his task. Occasionally this toil is far from a labour of love, and results in remarks more candid than courteous. Even a catalogue—most essentially prosaic of publications—can, however, satisfy the critical mind under certain conditions. Such a catalogue must be clear, yet concise. It must be adapted to its end. It must leave nothing to the imagination. Its possessor must be able to gather from its pages a complete idea of the scope, the style, and the economic advantages of the firm whose business it professes to illustrate. In addition, an up-to-date catalogue is expected to be well got up, beautifully printed, profusely illustrated, and handsomely bound. Starting with this somewhat exacting ideal, we have examined carefully Messrs. Young and Marten's latest issue. In appearance, their new general catalogue is a handsome work in two volumes, royal quarto, half-bound in leather, and containing some 900 pages. The paper is of good quality, its surface well adapted to illustrations. The type is clear: the printing quite satisfactory. Many thousands of blocks in line, half-tone, and colour illustrate the pages of this strikingly comprehensive compilation. The architect or builder who fails to find herein the meed of his desires must be bad to satisfy. For practical convenience the catalogue may be had in sections, complete as regards one department only. This method of sub-division has become a recognised custom, and is of equal advantage to the firm and their public. The separate sections before us comprise the sanitary, stove and range, painting, glass, and gas department. One and all they are of admirable lucidity and fulness. In each section the articles comprised are illustrated with care and accuracy. Among Messrs. Young and Marten's specialties one of the most useful is the series of kitchen ranges, known respectively as "The Pioneer," "The Leader," "Victorian," "Georgian Essex," "Alberti," and "Alexandrian." This series exemplifies the completeness of this catalogue in many other sections, ranging, as it does, in size from the small range adapted for a suburban villa, to the complete apparatus requisite for a country mansion or a London hotel; and in cost from a useful thirty-shilling article to some elaborate fifty-guinea production. Indeed, the whole catalogue—allowing occasional divergence from the beautiful in the effort to meet all kinds of taste, good and bad—is an admirable example of its kind. Nothing seems too trifling to receive due attention. A philosopher has told us that "Nothing is trivial that makes for perfection," and these laboriously elaborated volumes prove their authors to have grasped this philosophic axiom. It is always gratifying to see work well and fitly done. We are, in consequence, pleased with this outcome of business forethought—Messrs. Young and Marten's general catalogue for 1897—and can do no less than recommend it to the notice of the many professional and business men among our readers who have learnt to place reliance upon our judgment.

SHEFFIELD.—Mr. F. E. Smith and Mr. Henry Adams recently laid the corner stones of a new building, which is being erected at the rear of John Street Primitive Methodist Chapel, in order to provide much-needed accommodation for the Sunday School and Institute. The new premises, which are being erected by Mr. John Morton, of John Street, from the design of Mr. C. J. Innocent, architect, of George Street, will consist of an infants' school-room, with gallery, four other class-rooms of good size, and two large assembly-rooms, of which one will be for the junior institute and the other for the senior institute. The cost of the scheme will be over £2000.

S. PAXTON.—A stained glass window has just been placed in position in the parish church. The window is a very tasteful geometrical design, and bears the Royal monogram and crown, with the dates 1837 and 1897 wrought in medallions.

SPENNYMOOR, DURHAM.—On Wednesday last the foundation stones of the new Sunday school in connection with the Baptist Church, Spennymoor, were laid. The building consists of lecture hall and schoolroom, 33ft. by 30ft., with class-rooms on each side. The lecture hall is lighted by large windows at the end, and by clerestory windows over the class-rooms. The latter are separated from the lecture hall by folding partitions, so that the accommodation in the hall may be increased when necessary. Ample ventilation is provided by means of the clerestory windows and exhaust ventilator on roof. It is intended ultimately to renovate and re-seat the church, build a new baptistry and platform, and form a connection between the church and the new school. The work is being carried out from the plans of Mr. J. W. Hanson, architect, of South Shield and Jarrow, by the builder, Mr. R. Telfer, of Spennymoor, Durham.

ST. HELENS.—Foundation stones of a new Sunday school have been laid. The school is being erected, at a cost of about £1500, on the site of the old school chapel. The building which has been pulled down was erected about fifty years ago as the central school and chapel of the body. About twenty years ago the new chapel in Westfield Street was built, and the whole of the old premises used as a school.

WESTBURY-ON-SEVERN.—At a meeting of the Board of Guardians it was stated that the cost of the new Workhouse Buildings would be as follows: Tramp wards estimated at £2000, the officers' quarters at £3000, the laundry at £500, the children's probationary ward at £500, and other work at £1000, making £7500. The proposed loan of £7500, repayable at thirty years, could be borrowed on an annual repayment of £350, and the homes and the children boarded out would cost another £300, making a total expenditure of £650 a year.

WOLVERHAMPTON.—At the recent meeting of the Board of Guardians the Committee appointed on February 5th last to consider offers of sites for a new workhouse, reported that it had inspected the land which had been offered, and had had interviews with Mr. E. B. Wetherhed (Local Government Board inspector) and Mr. Gordon Smith (the Local Government Board architect), who had visited several of the sites. The committee recommended for the consideration of the Guardians the following: About thirty-five acres in Hordem Road, for which £325 per acre was asked; about fifty-six acres at Wood End, price £4000; and about fifty acres at New Cross, with farmhouse and buildings, the sum asked being £11,000. The Committee was in favour of the New Cross site, and this was agreed to by the casting vote of the chairman.

WOMBWELL.—A further appeal is being made for the new parish church, the nave and aisles of which are being built. These are estimated to cost when completed £4500, and the work of building is now making rapid progress. Attention is now called to the great necessity of finishing the edifice by the erection of a chancel and tower. To do this another £4000 will be needed.

ADVANTAGES OF INCANDESCENT GAS LIGHTING.

A report of considerable interest to municipalities whose street lighting is by means of gas, has been issued by the superintendent of street lighting of Liverpool, Mr. Bellamy. Up to a recent period the street lighting of Liverpool was exclusively by gas. In the leading thoroughfares electricity (provided by the Corporation) has taken its place, but elsewhere gas lighting is still relied upon, and in regard to this matter, the superintendent reports upon the comparative results arising from the use of the ordinary flat flame burner and the incandescent burner. The report is carried into great detail, showing exceedingly close observation and calculation. The pilot light or "bye-pass" arrangement was first tried with the incandescent system, but was found unsatisfactory. The pilot lights were untrustworthy, a proportion of them becoming extinguished during the day, necessitating a special visit of the lamplighter with a ladder after completing the lighting of his district. Added to this was the deterioration of the mantle caused by the use of the "bye-pass," whilst the cost of the maintenance of the pilot light in consumption of gas was assessed at 25ft. per hour, amounting to an annual consumption of 1428 cubic feet per burner, representing in cost 4s. 3d. per annum. This and other matters were regarded as unsatisfactory. The experiment was next tried of abolishing the pilot light, and lighting the burner by means of a match and ladder. The report shows this system to have been both costly and inconvenient, whereupon the attention of the officials was directed towards lighting the lamps by a torch and pole in the same manner as ordinary street gas lamps have been for many years lighted. Some special mechanical adaptations of the casing of the lamp were found necessary for this purpose, but these were provided. The system remains now in use, and it is possible to give comparisons which are very distinctive. They show that in brilliance of illumination the incandescent lamps are superior to the older type, that the consumption of gas is less, and that the total cost of street lighting is reduced. The conclusion, says the superintendent, is that a general extension of the system seems irresistible.

THE LARGEST GRAVING DOCK.

A steel floating dock, which is regarded as the largest of its class in the world, and which has been built by Messrs. C. S. Swan and Hunter (Limited), Wallsend-on-Tyne, for the Spanish Government, was successfully launched a few days ago from the pontoon yard of that firm. The dock is 450ft. long and 82ft. broad, and has a lifting power of 10,000 tons. It is designed for use at Havana, and will accommodate any cruiser or liner in the world, provided that the dead weight in docking trim does not exceed 10,000 tons. There are no gates at the ends of the pontoons to prevent a ship of a greater length than 450ft. overhanging to any extent. The dock was built in eight months, and the cost is said to be small in comparison with that of a stone graving dock.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AGHALEE (Lurgan).—For the erection of a dispensary and dispensary residence, Folly Hill, Aghalee, for the Lurgan Union.—

Chas. Boyd and Sons, Ormeau-road, Belfast ... £910

BATLEY (Yorks).—For the erection of twelve houses, &c., Talbot-street. Mr. J. H. Brearley, architect, Hanover-street, Batley.—

Masonry.—C. Robinson ... £1,000

Joinery.—J. W. Nettleton ... 380

Plumbing.—Exley Bros. ... 39

Plastering.—W. Parker ... 120

Slating.—Geo. Hargreaves ... 165

Painting ... 37

BATLEY (Yorks).—For extensions to Lady Anne Mills, Culver-road. Mr. J. H. Brearley, architect, Hanover-street, Batley.—

Masonry.—H. Crossland ... £380

Joinery.—H. Parthwaite ... 420

Plumbing.—Exley Bros. ... 78

Slating.—W. H. Thompson ... 70

Plastering.—S. Crawshaw ... 20

Ironfoundry.—Clay, Henrique and Co. ... 80

BATLEY (Yorks).—For the erection of four houses, &c., Dark-lane. Mr. J. H. Brearley, architect, Hanover-street, Batley.—

Masonry.—Thos. Oldroyd ... £360 0

Joinery.—E. Sykes ... 110 0

Plumbing.—H. Wood ... 23 10

Plastering.—Kitchingman and Raye ... 30 0

Slating.—J. M. Thornton ... 35 0

BATLEY (Yorks).—For the erection of four houses, &c., Knowles-street, Purlwell. Mr. J. H. Brearley, architect, Hanover-street, Batley.—

Masonry.—S. S. Baines ... £420

Joinery.—E. Sykes ... 135

Plumbing.—Exley Bros. ... 18

Plastering.—J. Greenwood ... 40

Slating.—W. H. Thompson ... 40

[All of Batley.]

BEXLEY (Kent).—For the construction of a new road on the Maypole Estate, for Messrs. Jennings and Fell, land agents, 3, Broad-street-buildings, London, E.C.—

R. W. Swaker ... £260 0 0 J. Brewer ... £590 0 0

W. H. Nicholls ... 714 2 4 W. H. Wheeler ... 573 0 0

F. Adams ... 680 0 0 Porter ... 580 0 0

T. A. Osborne ... 643 0 0 Lawrence and ... 489 11 2

Kent Road Co. ... 599 6 2 Thacker* ... 489 11 2

* Accepted.

BOLSOVER.—For the restoration and enlargement of St. Mary's Church, Bolsover. Mr. Louis Ambler, architect. Quantities by Messrs. Pinks and Watson, 45, Parliament-street, Westminster.—

G. Fisher Bros. ... £9,670 4 8 Chas. Trask and ... £8,479 6 6

J. Norris and Son ... 9,230 0 0 Rudd and Son ... 7,877 0 0

Luscombe and Son ... 8,725 0 0 Bowman and Son ... 7,776 10 6

G. M. Thompson ... 8,497 15 0

* Amended estimate accepted.

BOURNEMOUTH.—For extension of premises, Nos. 8, 10, and 12, Old Christchurch-road, for Messrs. Plummer, Roddis, and Tyrell, Ltd. Messrs. Pearce and Offer, architects. Quantities by Messrs. Jennings and Goater.—

McWilliam and Son ... £7,675 Jones and Son ... £7,435

F. Hoare and Son ... 7,608 George and Harding* ... 7,425

Jenkins and Son ... 7,442 Miller and Sons ... 7,294

W. Hoare ... 7,442

* Accepted.

BRANKSOME.—For the erection of a new infants' school, &c., for the School Board. Mr. Samuel J. Newman, architect.—

G. Baker ... £1,570 J. McWilliam and Son ... £1,295

G. Bevan ... 1,479 W. J. Cross ... 1,175

W. J. Wallis ... 1,453 F. Elcock Bournem. ... 1,175

Burt and Vick ... 1,372 month (accepted) ... 1,180

CHARLTON KINGS (Gloucester).—For erecting school buildings, for the School Board. Mr. J. Villar, F.S.I., architect, 1, Cambray, Cheltenham. Quantities by the architect.—

Capper and Son ... £2,213 0 Collins and Godfrey ... £1,779 0

A. Cleveley ... 1,998 10 W. H. R. A. Hunt, ... 1,740 0

Malvern and Sons ... 1,843 0 Cheltenham* ... 1,740 0

Allen Wilson ... 1,787

* Accepted.

CHURCH GRESLEY.—For the erection of a Wesleyan church, for the trustees, Mr. E. C. Clarke, architect, Prudential-buildings, Nottingham.—

Bromhead Brothers ... £2,645 8 J. H. Vickers, Ltd. ... £1,889 0

T. Barlow ... 2,194 0 E. Clarke ... 1,640 0

J. Hutchinson ... 2,094 0 C. Venning, Swad. ... 1,473 0

H. Vickers ... 1,920 0 lincoate* ... 1,473 0

Harrison and Slater ... 1,913 0

* Accepted.

CONGHAM (Norfolk).—For works of restoration of St. Andrew's Church (first contract). Mr. Herbert J. Green, architect and surveyor, Castle Meadow, Norwich.—

Cornish and Gaymer, ... Jno. Boddy, Harp. ... £508 0 0

North Walsham ... £242 4 2 ley, Swaffham* ... £508 0 0

W. J. Lamer, East Dereham ... 507 4 6

* Accepted, conditionally.

HULL.—For the erection of a junior department for 264 children, for the Kingston-upon-Hull School Board. Mr. W. Botterill, architect and surveyor (Messrs. Botterill, Son, and Bilson), 23, Parliament-street, Hull.—

Lison and Sons ... £2,386 2 0 Simpson and Son ... £2,776 8 8

G. Houlton ... 2,913 0 0 Hockney and ... 2,774 0 0

M. Harper ... 2,893 0 0 Liggins* ... 2,774 0 0

F. Beily ... 2,780 0 0

* Accepted.

LONDON.—For the erection of Union offices, Board-room, register office, &c., at Tooley-street, S.E., for the Guardians of the Poor of the St. Giles's Union. Messrs. Newman and Newman, architects and surveyors, 31, Tooley-street, London Bridge, S.E. Quantities by Mr. W. T. Farthing, 46, Strand, W.C.—

G. Sharpe ... £23,788 Goddard and Sons ... £21,544

Howell J. Williams ... 23,656 C. Wall ... 20,767

W. Downs ... 22,737 Johnson and Co. ... 20,190

W. Wallis ... 22,394 J. Bullers, Bermond. ... 18,980

Balaam Bros. ... 22,385

* Accepted.

LONDON.—For altering No. 95, Rye-lane, Peckham, for Messrs. Davies Bros. Mr. John Jas. Downes, architect, 190, Lewisham High-road, S.E.—

Sims and Wood ... £1,120 S. K. Best ... £849

Jerrard and Son ... 890 Clampton (accepted) ... 737

LONDON.—For the construction of roads and sewers at Crabbrook Park Estate, for Messrs. W. P. Griggs and J. W. H. Thompson. Mr. Edwin H. Moore, 37, Old Queen-street, Westminster, and Mr. J. B. Ball, engineers, 31, Tooley-street, Westminster.—

John Burrill ... £4,068 0 0 John Jackson ... £3,800 0 0

Jesse Jackson ... 3,075 0 0 W. Gibbs and Co., ... 3,296 14 9

Eli Wilson ... 3,850 0 0 Iford, E.* ... 3,296 14 9

* Accepted.

LONDON.—For erecting office buildings at Vestey's Wharf, Upper Ground-street, S.E., for the Union Cold Storage Company. Mr. Arthur W. Osborn, architect, 90, Queen-street, Cheshire.—

Smith and Sons ... £494 John Appleby, Cornwall. ... £422

G. Newton ... 472 road, S.E. (accepted) ... 420

Hoare and Son ... 450 King ... 420

LONDON.—For erecting a detached residence, Stanhope-road, Highgate, for Mr. Walter Northover. Mr. G. Gordon Stanham, architect, 100a, Queen Victoria-street, E.C.—

Houghton and Son ... £2,374 John Appleby, Corn. ... £2,450

McCormick and Son ... 2,555 wall-road, S.E. ... £2,450

* Accepted.

LONDON.—Accepted for external painting to warehouses, Stonecutter-street and St. Bride-street, for the Star Newspaper Company, Limited.—

John Appleby, Cornwall-road, S.E. ... £110

LONDON.—For new houses and stabling adjoining the "Canterbury Arms," Brixton, for Mr. Crawford. Messrs. Treacher, Sons, and Fisher, architects. Quantities by Mr. W. Hawker.—

Houses. Stabling. Total.

Edwards and Medway ... £2,570 433 £3,003

Burman and Son ... 2,538 433 2,971

Godson and Son ... 2,451 433 2,884

W. D. Palmer ... 2,458 402 2,860

LONDON.—Accepted for first portion of alteration to premises, 93, King-street, Hammersmith. Mr. Dunn Carmichael, architect.—

S. Ransom & Co., Britannia Works, Kensal-road, W. ... £505 10

[No competition.]

LONDON.—Accepted for alterations and additions to the "Duke of Wellington," Ball's Pond-road, N., for Mr. A. W. Bacon. Mr. Dunn Carmichael, architect.—

S. Ransom and Co., Kensal-road, W. ... £2,576 12

[No competition.]

LONDON.—For alterations to the "Carnarvon Castle," Portobello-road, W., for Mr. A. G. Towler. Mr. Dunn Carmichael, architect.—

T. Stevens ... £1,100 0 S. Ransom and Co., ... £996 10

A. A. Webber ... 1,074 0 Kensal-road, W.* ... 996 10

C. Cook and Sons ... 1,036 0

* Accepted.

LONDON.—For the erection of two shops and clearing site in The Grove, Baling, for Mr. G. Loftus. Messrs. Booth and Fox, architects, 9, John-street, Adelphi.—

H. Wace and Co. ... £1,925 J. Christie* ... £1,300

Kempson ... 1,385

* Accepted.

LONDON.—Accepted for the erection of eight houses in Addison-gardens, Kensington, for Kensington Freehold Land Trust, Ltd. Messrs. Booth and Fox, architects, 9, John-street, Adelphi.—

J. Christie ... £4,050

LONDON.—For boundary wall and fence to enclose portion of the Plumstead Cemetery next Lodge-lane, Woolwich.—

Mollett and Co. ... £298 1 Mills ... £793

Proctor ... 978 Thomas and Edge ... 713

Sanford and Co. ... 817 0 Watts ... 650

Mowlem and Co. ... 794 0 Wyle ... 650

LONDON.—For first portion of alterations to premises, 93, King-street, Hammersmith, for Mr. John Broughton Draper. Mr. Dunn Carmichael, architect.—

S. Ransom and Co., Britannia Works, Kensal-road, W. (accepted) ... £505 10 0

[No competition.]

LONDON.—For alterations and additions to the "Duke of Wellington," Ball's Pond-road, N., for Mr. A. W. Bacon. Mr. Dunn Carmichael, architect.—

S. Ransom and Co., Kensal-road, W. (accepted) ... £2,576 12 0

[No competition.]

LONDON.—For alterations to the "Carnarvon Castle," Portobello-road, W., for Mr. A. G. Towler. Mr. Dunn Carmichael, architect.—

T. Stevens, South Molton-street, W. ... £1,100 0 0

A. A. Webber, Mortimer-street, W. ... 1,074 0 0

C. Foale and Sons, Tavistock-crescent, W. ... 1,036 0 0

S. Ransom and Co., Kensal-road, W. (accepted) ... 996 10 0

* Accepted.

MELKSHAM.—For the erection of eleven cottages at Melksham, for Melksham Dwellings, Limited. Mr. Edwin Bigwood and Co. ... £1,760 Minty and Skinner, ... £1,155

Edward Lindzey ... 1,398 Trowbridge* ... 1,155

* Accepted.

MORRISTON (Glamorganshire).—For rebuilding the "Rose and Crown" Inn, Morriston. Messrs. J. P. Jones and Rowlands, architects, 55, Wind-street, Swansea.—

Lloyd Bros. ... £2,440 0 H. Billings ... £2,150 0

T. Richards ... 2,230 0 J. Davies ... 2,020 10

D. Jenkins ... 2,230 0 T. Davies ... 1,940 0

Gustavus Bros. ... 2,180 0 Walters and Johns ... 1,900 0

NORTHWICH.—For (1) providing and fixing an iron palisade fence in London-road; (2) building three manholes in Leicester-street and Lime Kiln-road, for the Northwich Urban District Council. Mr. John Brooks, surveyor to the Council.—

J. Holland ... £295 0 J. Ravenscroft, ... £214 4 0

S. Appleton ... 274 0 Northwich* ... 214 4 0

G. Rathbone ... 268 16 5

* Accepted.

J. Ravenscroft, Northwich (accepted) ... £20

PLYMOUTH.—For making up and completing Seymour-avenue and Seymour-road, Maudslayi, for the Plymouth Corporation. Mr. J. Paton, Borough engineer and surveyor, Municipal Offices, Plymouth.—

H. E. Skinner ... £247 0 A. N. Coles ... £479 13

T. Shaddock ... 493 14 C. L. Duke, Coxside* ... 451 2

[Surveyor's estimate, £465 16s.]

* Accepted, subject to approval of Council.

T. Shaddock ... £1,632 10 0 H. E. Skinner, ... £1,450 0 0

A. N. Coles ... 1,613 14 10 Plymouth* ... 1,450 0 0

C. L. Duke ... 1,543 7 0

[Surveyor's estimate, £1,578 16s.]

* Accepted, subject to approval of Council.

RUSHDEN (Northamptonshire).—For erecting a villa residence, Newton-road, Rushden, for Mr. C. L. Bradfield. Mr. Arthur Garner, architect, 66, Oakhurst-grove, East Dulwich, London.—

Aldridge Brothers ... £1,400 C. E. Bayes, Rushden* ... £1,100

* Accepted for the reduced amount, £1,045

SILVERTON.—For the erection of a house, for Miss A. and Mr. E. Stone, Perry Farm, Silverton, Devon. Mr. T. Jones, architect, 6, Western-villas, Crediton.—

Amery ... £340 Payne and Gillard, Crediton ... £220

Short ... 305 diton* ... 220

Brook ... 275

* Accepted.

SLOUGH.—For sewer and road works, Diamond Freehold Estate. Mr. J. Baker, engineer, 75, High-street, Slough. Quantities by engineer.—

T. Free and Sons ... £2,263 0 0 W. Lee and Son ... £1,860 0 0

W. Swaker ... 2,146 2 0 H. Lee, Southall* ... 1,766 4 8

* Accepted.

SOUTHAMPTON.—Accepted for the construction of new roads and drains at Freemantle. Messrs. Jurd and Sanders, surveyors, Southampton.—

W. Batten ... £1,350

SOUTHAMPTON.—For the erection of three cottages at Union-road, Southampton, for Mr. H. Hayward. Messrs. Jurd and Sanders, architects, Southampton.—

T. J. Jukes ... £776 W. R. Taylor* ... £535

Golding and Ansell ... 546

* Accepted.

SOUTHAMPTON.—Accepted for the erection of pair of houses in Atherley-road, Southampton, for Mr. W. P. Elliott. Messrs. Jurd and Sanders, architects, Southampton.—

John Nicholl ... £650

SOUTH TAWTON (Devon).—For the erection of farm buildings, Great Youldon, for Mr. J. M. Pope. Mr. Thos. Jones, architect, 6, Western-villas, Crediton.—

Counter ... £536 9 6 Lee and Edwards, ... £437 10 0

Ash and Sons ... 586 0 0 Copplestone* ... 437 10 0

Fisher Bros. ... 548 0 0



Our Country Villages.

THE Daily Chronicle paints a lurid picture of the sanitary condition of our country villages. The Arcadian idea it dismisses as "a mere piece of fiction," and proceeds to say that "over wide districts sanitation is an unknown thing; damp, decaying, and overcrowded cottages, filthy water supply, soils rotten with the soak and leakage of old dead wells and cesspools, and the continual presence of fever, whooping cough, and diphtheria—that is a picture of our rural districts nearer the truth than the delightful Arcadian conception." This we should be inclined to doubt. While such may possibly be the condition of certain isolated villages, we contend that it is by no means a fair description of the great majority. The probability is that the truth includes both extremes. In Arcadia, as we conceive it, certainly "sanitation is an unknown thing." Drains, sanitary inspectors, and doctors are not required. The fact seems to be that, given an open-air life and occupation, and sufficient food and clothing, the human species can and does flourish in surroundings which to us seem grossly insanitary and dangerous. We have in mind a fishing village of about 1000 inhabitants. The houses are jammed against and almost on the top of one another, in the hollow between two steep hills. The great majority have neither forecourt or garden of any description, many get light only from the front, the living rooms are often far below the level of the ground on one side of the house, but few houses in the place have any sort of earth closet or convenience of any kind. Refuse is thrown into the harbour or dumped in the corner of any available space, and at times the stench is intolerable. It is an instance of open defiance of every known law of sanitation. Yet the death-rate is one of the lowest in England, typhoid fever and diphtheria are no more prevalent than elsewhere, there are very few deaths in the prime of life, and the place is considered most healthy. It seems to us that in these days of sanitary congresses, and surrounded as we are with such wonderful and ingenious contrivances which it seems a pity not to use, architects are apt to forget that sanitation, as it is generally understood in our large towns, including an elaborate drainage scheme and such fearful and intricate systems of ventilation, is after all nothing but a precaution, a sort of antidote rendered necessary by the habit human beings have of herding together in large numbers, and so enfeebling their constitutions and over-refining their sensibilities. It is not a necessity of existence. Till within the last century or so open drains were considered good enough. Some are of opinion that in protecting our nostrils we are really endangering our health. It certainly appears to be generally acknowledged that it is in the closed drain that the danger lies. Those of us who practise in the large towns where covered-in drainage is insisted upon, and every detail settled for us by authority, are apt to grow accustomed to it, take it all for granted, and consider that a house could no more do without drains than without a roof. We then apply the same elaborate system to country houses, with a cesspool to take the place of a main sewer. Of late years we have grown more "nice" in our habits, perhaps a trifle squeamish. People are not

content now with the accommodation that was sufficient for their grandfathers, and in their country houses they expect pedestal closets and all the latest improvements of sanitary science. It is forgotten that all these things have been invented to meet the requirements of conditions that do not exist in the country. They become a most expensive luxury, and, with all respect to our sanitary experts, perhaps as dangerous as they are expensive. In towns it has become necessary to cover in the drains; this is a dangerous method, which has led to all these contrivances for isolating the drains from the house, and preventing the passage of sewer gas. The more perfect these contrivances the better, but surely the ideal system would be one that did not create this sewer gas at all. To cover in drains is wrong in principle—the only thing we can do is, by the perfection of our apparatus, to make them as harmless as possible in practice. Instead of confining our efforts to the invention of more and more perfect traps and joints, should we not rather try and find some method of doing without them alto-

to our mind the safest thing yet invented, and it ought not to be beyond the skill of our architects to arrange them in such a way as to conform to our ideas of decency and comfort. In brief, covered drains are a danger; if we must have them, we must, and let them be as perfect as possible; but if we can possibly do without them, even at some loss of convenience, it will probably be found the safer plan.

L.C.C. Projects. A SUMMARY of the past year's work of the London County Council has already appeared in our pages. A short review of other municipal matters and projects not dealt with therein may be of interest. Some attention has been devoted to the Coldharbour Lane, Rosebery Avenue, and Sandy's Row improvements, and also to improvements carried out jointly by the Council and local authorities. The Committee refers to the question of the Council's failure to let land, and states that it has given the subject considerable time and attention. At first it was thought that to some extent it was owing to the stringency of the build-



A "BIT" OF OLD SHEFFIELD.

gether? A perfect drain may be perfectly healthy, but an imperfect one is perhaps worse than none at all. As they are all more or less imperfect, this seems to us the danger, and when it comes to introducing this covered system into small villages and country houses, we have doubts as to the wisdom of the proceeding. The earth-closet in the garden is

ing conditions, but, upon close examination, this was not found to be the case, inasmuch as in the days of the Metropolitan Board of Works similar conditions obtained, and the Board rarely failed to find tenants. At the same time the Committee found that the late Board did not enforce the conditions to the letter, except in the case of an unscrupulous tenant, whereas the Council's practice was not only to

enforce compliance with the conditions in all cases, but to make the architectural supervision of a somewhat severe character. After looking at the matter from all points of view, it came to the conclusion that the method of supervision generally caused delay in approving plans, alterations in plans, and in granting leases, and, as a consequence,

BUILDERS SUFFERED SERIOUS INCONVENIENCE.

It was, therefore, obvious that the Council as landlord did not, from a tenant's point of view, compare as favourably as it might do with other ground landlords, and that to remedy this a wider authority and discretion would have to be reposed in the architect. The procedure accordingly had been amended with regard to buildings to be erected on the Council's land, so that the architect is now responsible for the approval of plans and specifications for buildings and all alterations therein during the course of construction. It will no doubt take some little time before the changes will produce the effect desired. When the changes are widely known the Committee opines that it will be much less difficult to dispose of the Council's vacant land than it has been heretofore by reason of bidders who have been deterred from coming forward in the past holding back no longer. In 1896, the Committee reported to the Council that the valuer estimated the total cost of the ground plan of London, showing the various ownerships, at £4000. Of this sum, £1750 has been sanctioned by the Council to be expended up to March 31st, 1897, in connection with the work. Up to the present time information has been obtained from the Middlesex Register in respect of 198 estates, of which sixty-eight have already been defined upon the sheets. At present 1670 estates have been defined, and 134 estates are waiting to be defined.

THE PROPOSED NEW OFFICES.

Three years have passed since any recommendation was made by the Committee with reference to a site for new county offices, the matter was in the early part of last year again the subject of much consideration, and the Committee arrived at the conclusion that, in face of the difficulty of finding a suitable site, the Council would be well advised to effect an extension of its present offices in Spring Gardens. This conclusion was much strengthened by the circumstance that the long-talked-of alterations in connection with the erection of the new Admiralty buildings, and with the opening up of the Mall by the construction of a new avenue leading into Charing Cross, seemed likely at last to be proceeded with. It was also felt that, as the Council and its predecessors, the Metropolitan Board of Works, had been in occupation of Spring Gardens for upwards of thirty-six years, an extension was preferable to removal to some other locality. It accordingly reported to the Council on June 2nd, recommending that application should be made to Parliament for power to acquire the site lying between Spring Gardens and Trafalgar Square, comprising, with the site of the existing County Hall, about two acres. The estimated cost was £813,000, £203,000 of which represented the cost of making the Council freeholders of the leasehold premises it now occupies. Of the remaining £610,000 the greater part was attributable to the properties facing Trafalgar Square, and it pointed out that if the ground floor and basement of this frontage were utilised for such purposes as banks and insurance offices, a recoupment might be secured of considerably more than one-third of the whole cost of acquisition. A resolution was eventually come to in favour of the recommendation, but the second reading of the Bill on the subject was negatived.

THE IMPROVEMENT SCHEME

undertaken by the Council under the Housing of the Working Classes Act, 1890, in Boundary Street, Bethnal Green, has made good progress. The Clare Market scheme has received approval, as have also the Churchway (Somers Town, St. Pancras), Bell Lane (Whitechapel), Falcon Court (Borough, St. George-the-Martyr), Mill Lane (Deptford), Ann Street

(Poplar), and Brooke's Market (Holborn) schemes. Schemes have been, or are to be, undertaken by local authorities in Moira Place and Plumber's Place (Shoreditch), King John's Court (Limehouse), Norfolk Square (Islington), Brantome Place and Prospect Terrace (St. Pancras), and Fulford Street and Braddon Street (Rotherhithe). Various sites for the erection of working class dwellings have been acquired, or are proposed to be acquired, by the Council. The improvement of the northern approach to the Tower Bridge has occupied the attention of the Improvements Committee for some time. The scheme provides for the construction of a new street from Tower Hill to Prescott Street. The new street proposed will be 60ft. wide, will commence at Tower Hill at the western side of the Royal Mint (a portion of which will have to be acquired by the authorities), and will pass in a direct line to Royal Mint Street at the point where Little Prescott Street enters that thoroughfare, thence continuing in the line of Little Prescott Street to the junction of Mansell Street with Prescott Street. The plan originally submitted to the Council involved the acquisition of a portion of the Royal Mint, but that plan did not receive the sanction of H.M. Office of Works. As a result of negotiations, however, an amended scheme, involving the acquisition of a smaller portion of the Mint that was originally proposed, has been approved by the two bodies—the Council and the Office of Works.

THE AMENDED PLAN

provides for a 60ft. street, but at a cost in excess of that for the original scheme, the estimate of the net cost now being—for works, £60,000 (£40,000 of which represents the cost of necessary re-construction of the bridges carrying the railways over the new street); and for property, £156,500; giving the total of £216,500, which includes the cost of a subway along the new thoroughfare. Being of opinion that the proposed approach was an example of a county improvement, which would add an increased value to property in the locality, the Committee decided to recommend that part of the cost should be met by means of an improvement charge, on the same general principle as that embodied in the betterment sections of the London County Council (Tower Bridge Southern Approach) Act, 1895. By a recent standing order of the House of Lords the improvement area (being the limits within which the charge may be imposed) is to comprise only properties all or any part of which are within a uniform distance of any part of the centre of the new street, not exceeding three times the breadth of the street. As the new street will be 60ft. wide, this uniform distance cannot exceed 180ft. on either side of the centre of the street. The proposed street will not involve the acquisition in any one parish of twenty houses occupied by persons of the labouring class, and therefore under the standing orders of Parliament the Council will not be required to re-house the persons displaced. The proposal for the

WIDENING OF OLD STREET

at its junction with Goswell Road has become a necessity. The late Metropolitan Board, in 1872, obtained power to form a line of thoroughfare from Commercial Street to Bloomsbury, Old Street forming part of that line of communication. The widening of Old Street, however, was not carried out, notwithstanding constant petitions by the Vestry and inhabitants of St. Luke. The formation of the new line of thoroughfare between Commercial Street and Bloomsbury, has developed a heavy and continuous traffic, which has been still further increased by the continuation by the North Metropolitan Tramway Company of its Old Street lines to Gray's Inn Road and Southampton Row. At the intersection of Old Street, Clerkenwell Road, and Goswell Road, the traffic on the new line of thoroughfare is crossed by the heavy traffic to and from the north of London, the City, Smithfield Markets, and the large railway and other goods depôts in and about the neighbourhood. From a return of the

traffic it appears that upon several days some 7000 vehicles passed along the western end of Old Street between the hours of 6 a.m. and 8 p.m.; frequently as many as 700 passed in one hour. The improvement now proposed is that Old Street should be widened between Central Street and Goswell Road, and that the eastern side of Goswell Road, at its junction with Old Street as far as Willow Walk, should be set back, thus providing for a width of 60ft. instead of between 40ft. and 50ft. as at present. The estimated net cost of the improvement is £164,500, which includes the cost of constructing a sewer and a subway, and of planting trees. Powers to carry out the improvement are being sought from Parliament. The Strand

WIDENING AT HOLYWELL STREET

has also been decided upon. The chief features of the scheme are—(1) the removal of the block of buildings south of Holywell Street; (2) the provision of greater road space at one of the most crowded parts of the Strand; (3) the opening to view of several architectural features at present obscured, and the admission of light and air where most needed; and (4) the formation of a much required adequate Strand approach to the Royal Courts of Justice. The estimate of the engineer for the necessary works connected with the proposed improvement, including the paving, a subway, and the planting of trees, is £23,000; the estimate of the valuer for the acquisition of the property is £546,130; making together £569,130, which represents about one-sixth of a penny in the pound on the rates for the first year. The practical effect of the proposed expenditure upon the ratepayers in London will be that a householder rated at £40 will have to contribute 6½d. annually to the improvement; the payment would decrease annually, and be extinguished in about sixty years.

A BIT OF OLD SHEFFIELD.

THE sketch we publish on the front page is taken from a photograph kindly placed at our disposal by Mr. W. E. Davis, of Fleet Street, and illustrates a doorway of the late seventeenth or early eighteenth century which was removed from some old premises pulled down on the site of Messrs. Pawson and Brailsford's new building, near the Parish Church. It has been re-erected in the Weston Park, an example that might well be followed in other instances. The view had to be somewhat foreshortened to screen a notice board somewhat conspicuously placed just inside.

A PROPOSAL is on foot by the Holyhead Urban District Council to purchase the Waterworks from the existing Company.

New schools erected by the Sowerby Bridge School Board at Bolton Brow have recently been opened.

A RED granite drinking fountain has been presented to the Seaton (Devon) Urban District Council, in commemoration of the Queen's Jubilee, by Mr. W. H. Willans, chairman of the London Chamber of Commerce.

MR. OSCAR HARRISON, surveyor and engineer, of Workop, died last week. For two years he had filled the post of surveyor, architect, and engineer to the Workop and Retford Brewery Company, and for the five years previously was surveyor to the old Workop Local Board and the Urban District Council.

THE Wombwell New Parish Church Building Fund has reached £4606. The nave will be opened late in the autumn, and is costing £4500, but £4000 more is still wanted to complete the building. A stone pulpit, font, oak altar, brass lectern, brass candlesticks, cross and flower vases, and office books have lately been promised for the church.

By the permission of the governors, architect, and builders, a numerous party of members and friends of the Clerks of Works and Builders' Foremen Association recently paid a visit to the New General Hospital, Birmingham. The party was conducted over the building by Mr. Parsons (the clerk of works) and Mr. Randall (the foreman).

LONDON DOORHEADS.

By H. F. CARR AND H. F. WARING.

PART I.

CARVED wooden doorheads form a rapidly disappearing feature of London, and each one of the examples now remaining is a link in the chain which connects us with the past that once broken can never be re-forged; for their numbers diminish all too quickly, and the paternal provisions of the "powers that be" have banished wood for ever from any part or share in the exterior decorations of our houses. The heavier materials in which we are now compelled to build have rendered totally impossible the graceful but slenderly supported doorheads of the Queen Anne period, and have, in the form of the portico or porch, produced the monstrosities in stucco of South Kensington and Belgravia, though in more recent years terra cotta has been introduced instead, with fairly successful results, in Arundel Street, Strand, and Kensington Court, amongst other places.

The majority of the doorheads now remaining belong to the eighteenth century, and the influence of Wren may be traced in very many of them, whilst in their own particular neighbourhood many recognised and acknowledged examples of the Adam Brothers' work may be found in a very good state of preservation.

Several examples that must belong to a period earlier than the eighteenth century may be found, but specimens that may be confidently stated to be earlier than the middle of the seventeenth century are few and far between, for much good woodwork must have perished in the great fire of London, whilst the constant rebuilding that is always going on in the residential quarters of London easily accounts for the destruction of much excellent domestic work that, on more important buildings, would have been jealously preserved.

And in this connection it is interesting to note that it is in the once fashionable, but now business, quarters that the best examples of carved doorways are to be found; not that it was the custom of our forefathers to put such elaborate work on their business premises, but many men, and more especially City merchants, used at this period to live upon their business premises, which would account for the doorheads to be found in Laurence Pountney

Hill, Bartlett's Buildings, Holborn, or Great Ormond Street, Bloomsbury, whilst Buckingham Street, Strand, where once stood York House, the palatial residence of the Dukes of Buckingham, and the water-gate of which still stands at the bottom of the street, was under the name of York Buildings, the abode of Samuel Pepys from 1684 to 1700, and of Peter the Great on his visit to England in 1698. Queen Anne's Gate, another quarter of fashion, and even now a pleasant place of residence, though in the main given up to business offices, with the neighbourhood of Queen's Square and Great Ormond Street, all afford instances of how much we are indebted to the small sanitary requirements of our business men for the preservation of our forefathers' handiwork.

The work of the seventeenth century was an adaptation of classic models to modern materials and requirements. In Wren's hands this adaptation was generally ingenious, often productive of fine effects, but in most cases at

the sacrifice or mixture of the correcter features of the classic styles; for floral decorations and elaborate mouldings carved with a Renaissance character are used side by side with pillars, capitals, and pediments of a thorough classic nature.

Such development as there was during the century now under discussion tended towards a correcter and more accurate employment of the classic models adopted as the basis of the work of this period, a tendency which was immensely developed by the work of the Adam Brothers in the middle of the last, and culminated in the adoption of specific Athenian and Roman buildings as models for our West-end buildings in the present century.

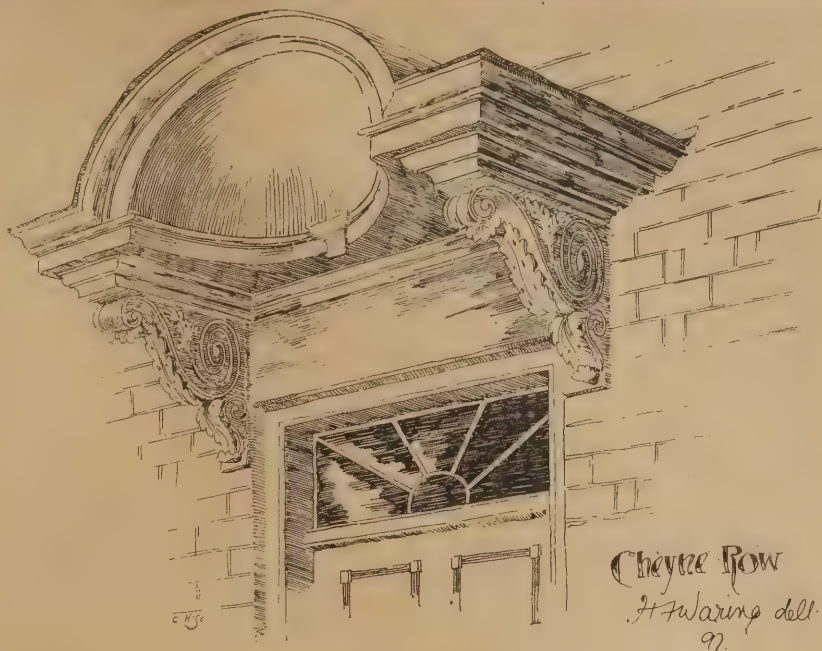
The evidence available as to the dates of the examples of wooden doorways selected for illustration only enables us to place them approximately, and in many cases the extrinsic facts at our disposal are the only means we have of putting dates to examples where it is obvious they are copies of or closely adapted from previous efforts.

In the first doorway we have illustrated here, No. 11, Buckingham Street, Strand (Fig. 1),* we have an example that belongs to the end of the seventeenth century—that it was not earlier we may be sure, for according to Pepys' Diary, York House was standing on this site in 1661, whilst in 1684, as mentioned above, Pepys himself was residing in one of the new houses erected under the name of York Buildings.

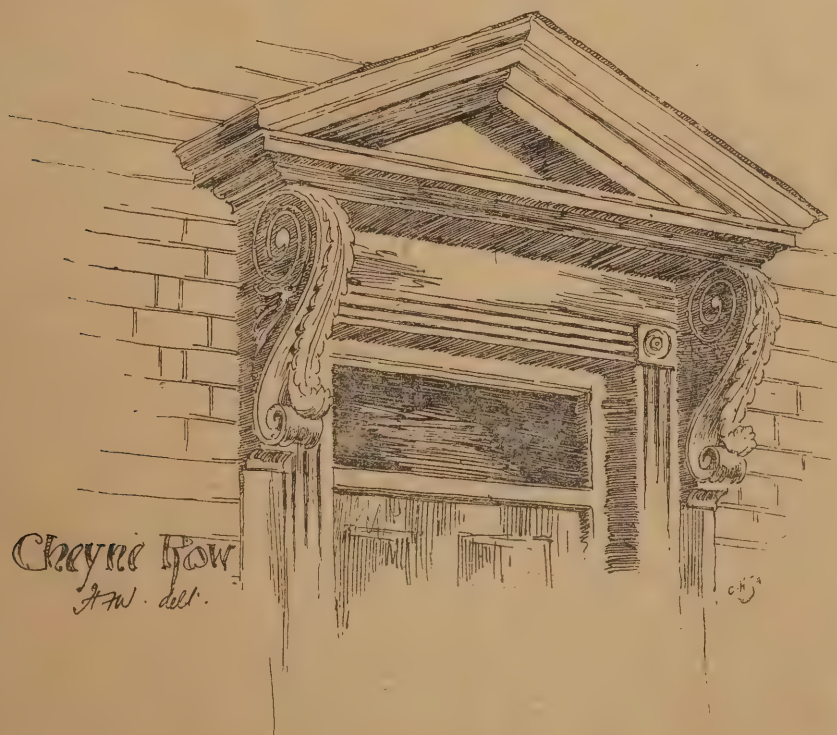
The estate was sold in building plots by George Villiers, the second Duke of Buckingham, and it is extremely probable that to Wren was entrusted the designing of some of the houses, as we know, again on the authority of Pepys, that he was on intimate terms with the second Duke, for under the date of 21st March, 1668-9 of Pepys' Diary, it is recorded that it was through the influence of the duke that Wren was appointed successor of Sir John Denham as Surveyor of the King's Works.

Though we know that many of the houses in this street have been since rebuilt, yet the two examples given (Figs. 1 and 2)* are certainly earlier than the first rebuilding of this property is likely to have taken place, whilst Fig. 2, in the boldness of its mouldings, the arch in the centre, and the curious moulding rising to support it, with the Corinthian pilasters, and the bold sweep of the arch above, seems to bear the stamp of Wren's genius and characteristics.

A comparison of this example with Fig. 1, which on its own merits would appear to be of rather earlier workmanship, seems to point to a common origin; the almost identical pilasters and caps, and the similarity of the mouldings, all support the view that they are the work of



LONDON DOORHEADS. FIG. 3.



LONDON DOORHEADS. FIG. 4. SKETCHED BY H. F. WARING.

* See central illustrations.

one man, and the elaborate consols with the egg-and-tongue moulding above are features that one associates with specimens of Wren's work.

But if this be correct, and these two examples are one man's work and of similar date, then it is interesting to note how the idea of a projection or cover co-exists with the doorhead as a mere ornament, and that therefore it is impossible to make this characteristic a basis from which to trace the development of a different class of design.

In Great Ormond Street, also, we have another example of early work (Fig. 5), which may, perhaps, have been Wren's work also. The deep and elaborately carved moulding round the doorway is almost invariably associated with the early work of the eighteenth century, and occurs in two very fine doorways of a rather different character, Nos. 1 and 2, Laurence Pountney Hill, in the City, and one of these doors bears the date 1702; unfortunately, it has not been possible to include these two among the examples here illustrated; these also are examples of the projecting style of door, with concave niche in the centre, similar in character to Fig. 3, though much more elaborate in decoration.

This moulding, coupled with the flat pilasters and Ionic caps, decorated with acanthus leaves, the human head surmounting the caps and supporting elaborately carved consols, and, lastly, the bold mouldings above with the break in the centre of the frieze, are characteristics that one associates with the master mind of this period of construction and decoration.

Some of the best carvings of Great Ormond Street are attributed by Timbs (1866) to Nicholas Collet, the successor of Grinling Gibbons, and the reputed carver of Queen Anne's state coach. As the date of this craftsman's death was 1806, his work belongs to the latter part of the eighteenth century, and will be dealt with in the second part of this paper, and it is improbable that this door can have been his handiwork.

The examples of carving to be found in Queen Anne's Gate, Westminster, also belong to about the middle of this century, later than those just described but undoubtedly bearing traces of the influence of this period in the heavily carved mouldings, the use of the cupid's head in the centre and the elaborate carvings of fruit and flowers as part of the decoration (one of the features of the work of Gibbon's period). The pilasters, which support nothing, are more adroitly decorative than in our previous illustrations, yet point to the classical influence underlying all this work.

The remaining two examples illustrated in the present number are from Cheyne Row, Chelsea, and do not both appear to belong to the same period of workmanship.

The first example (Fig. 3) though very much simpler in character, has striking points of similarity with the doors on Laurence Pountney Hill. The pilasters and mouldings are entirely absent, but the consols are in good proportion to what they have to support, and the general strength and character of the mouldings give the idea of a well-designed door by some worker imbued with the spirit of the period. The other example (Fig. 4), however, shows defects where the last had merits. The consols are quite disproportionate to the size of the pediment above, a perfectly meaningless ribbed moulding is inserted round the door, whilst the unequal character of the mouldings on the lower and upper parts of the pediment suggests that the latter moulding has been boldly copied from some better example, and the whole indicates a decadence from the spirit of this period that belongs most probably to the early part of the present century.

(To be continued.)

As a county memorial of the record reign of the Queen, the inhabitants of the Isle of Wight have subscribed for the erection of a wing to the Royal Isle of Wight Infirmary for the accommodation of children. Princess Henry laid the foundation stone on Monday afternoon.

THE CONSTRUCTION OF FIVE FAMOUS DOMES.

No. I.—THE PANTHEON.

By JOHN A. MARSHALL.

A CAREFUL study of what has been termed "the most important acquisition with which Science has enriched the art of Architecture," cannot fail to prove eminently interesting and instructive.

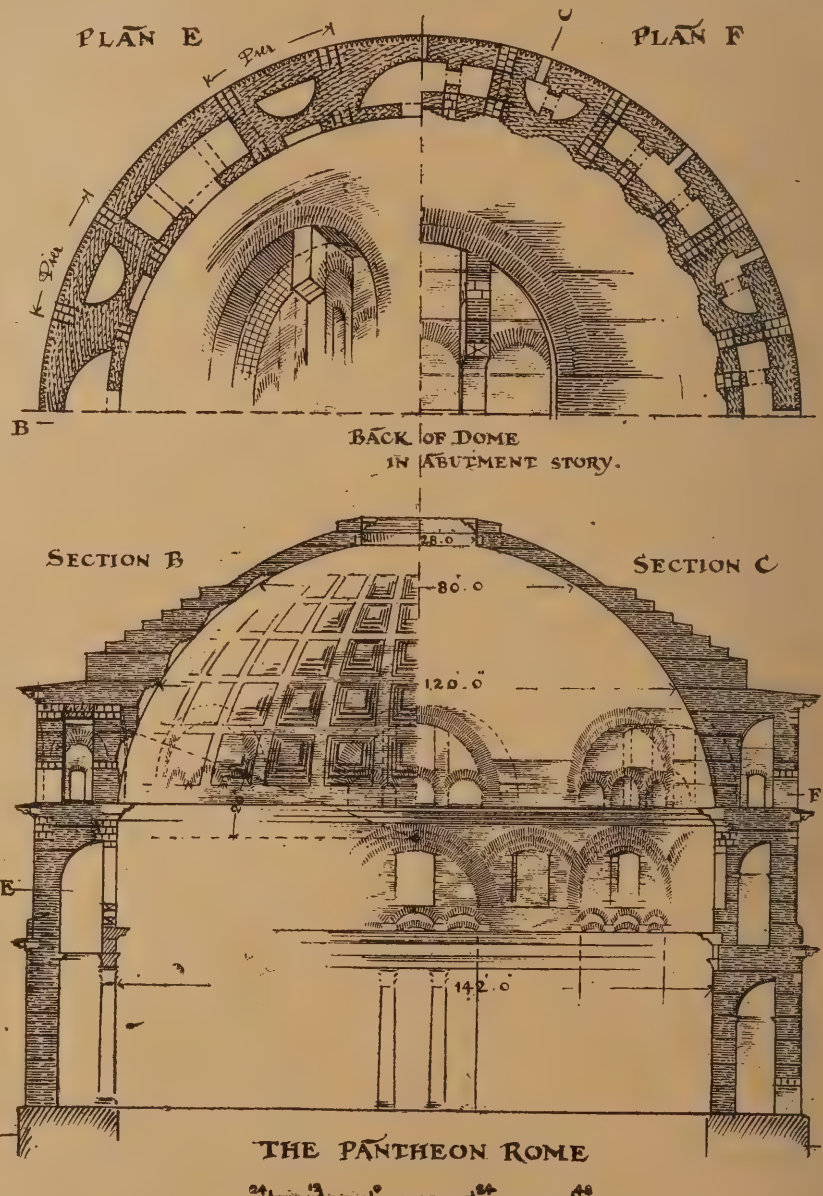
The five examples to be considered are the most famous domes erected in Europe during a period extending, probably, from the early days of the second century to the end of the

from a circular drum enriched with the peristyle and attic.

Thus, each succeeding example is seen to be a decided advance on its predecessor, possessing some essential feature peculiar to itself, which entitles the complete structure to be regarded, not merely as the expansion of some previously recognised idea, but rather as an original work of superior genius.

The Pantheon, so simple in idea, and of such vast extent, affords peculiar facilities for the study of the principles of domical vaulting in application.

It may be premised that if a dome be built on the principle of the arch, yet the strength inherent in the former is due to qualities which the latter does not possess. Both in the dome and in the arch, of semi-circular section, the



seventeenth. Together, they constitute a progressive series, with characteristics ranging from the severe simplicity of the ancient Pantheon, to the elegant proportions of the modern St. Paul's; and, for boldness of conception, constructional skill, and grandeur of design, they are, without question, unsurpassed.

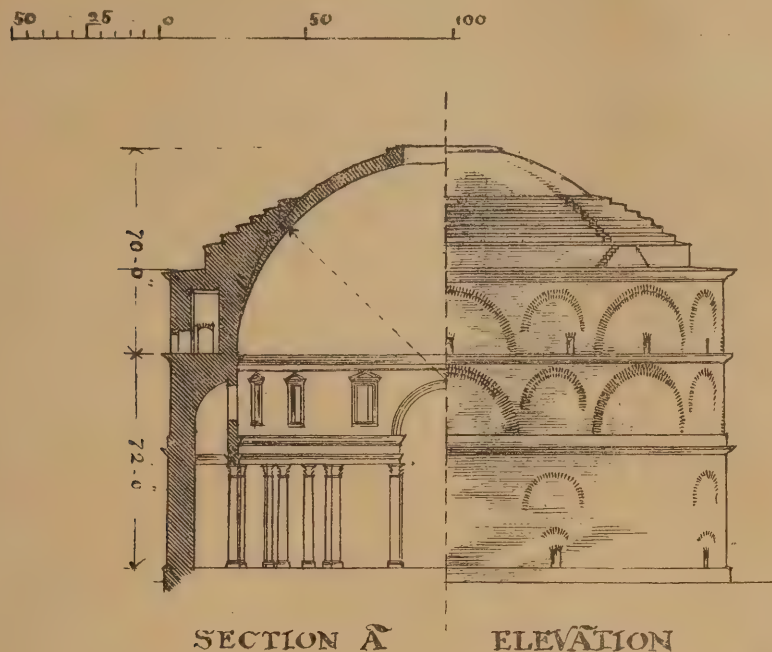
The distinctive characteristics of these examples, or types, respectively, may be summarised thus: (1) the dome in its simplest form, springing from a circular compartment; (2) the pendentive dome, springing from a square compartment; (3) the double dome, with lantern, springing from an octagonal tambour, or drum; (4) the double dome, with lantern, springing from a circular drum, elevated on pendentives, and enriched with the peristyle; and (5) the double dome, with independent support for lantern, springing

thrust is produced by the horizontal pressure at the crown threatening to force out the haunches.

But a dome, consisting of what is virtually a series of superimposed rings, possesses, in their lateral pressure, a continuity of resistance which renders the structure self-supporting at any stage of its height. Because of this quality, and also of the fact that the rings diminish in diameter, and consequently in weight, as they approach the crown, the thrust, at any given point in a dome, is less than that exerted at the corresponding point in an ordinary arch of equal span.

In a hemispherical dome of uniform thickness, the effect of the horizontal pressure at the crown—according to Tarn—is invariably greatest at a level 20 degrees from the springing; but its value, in domes of like proportions,

THE PANTHEON - ROME



varies as the cube of the diameter or span. Thus, if the span be doubled, the thrust will be increased eightfold; but by a gradual decrease of the thickness upward, whereby the weight, and consequently the pressure, at the crown are reduced, it is evident that the thrust may be considerably diminished; or, what is practically the same, it may be counteracted by piling around the haunches an extraneous mass of material, sufficient by its sheer weight to effectually withstand the force of the pressure.

To clearly understand the conditions on which a dome depends for its stability, a brief examination of the supporting structure should first be made. In the Pantheon this is a rotunda, the form most conducive to strength. Its internal diameter is 142ft. 6in., and the height, from the floor to the springing of the dome, is 72ft. Its wall has a total thickness of 21ft.; but the expedients adopted for securing strength, combined with economy in the use of material, reduce the supports to little more than eight hollow piers, placed at regular intervals. A connecting wall, about 9ft. in thickness, forms a continuous curve on the exterior, leaving in the interior a series of deep recesses, which are vaulted just under the springing of the dome, so as to transmit the superincumbent weight to the piers.

The voids in the piers are semi-circular on plan, with the curve towards the interior of the edifice; while further strength is secured by two tiers of semi-domical vaulting.

The inner surface of the dome is not quite hemispherical, the centre being about 10ft. below the springing. From the springing level to the height of 28ft. the haunches are girt with an abutment story, raised on the rotunda, the disposition on plan of the solids and voids, as well as the system of vaulting, being somewhat similar to that in the wall below. In the interior spaces are transverse walls, 3ft. thick, connecting the inner and the outer walls, thus providing a more continuous abutment, while still observing economy in the use of material.

The dome is also weighted with a solid mass, which rests on the abutment story and rises in a series of steps to about two-thirds of the height. From this level the outline follows the curve of the interior. At the crown is a circular aperture, or eye, 28ft. in diameter, this being the sole provision for light into the building.

From the foregoing description it will be seen that the builders of the Pantheon were thoroughly acquainted with the nature of the forces with which they had to deal. But the extreme extent to which they have applied abutment seems also to afford evidence of a

desire, not only to meet all statical requirements, but also to give to the rotunda a greater elevation externally. With this two-fold object, they maintained the full thickness of the supporting wall to the level of the weakest point of the dome, i.e., to fully one-third of its height, thus virtually making that portion, with its massive encasement, a part of the supporting structure, and practically reducing the span from 142ft. to 120ft.

In the next stage, the peculiar disposition of the material may be said to impart to the dome the constructional nature of a cone. The thickness here commences at 15ft., and rapidly diminishes, until, at a point where the diameter is 80ft., it is only 4ft., at which it is maintained to within 14ft. of the crown, and, by the omission of the remaining portion, the principle underlying the abutment system may be said to be carried to its utmost limit.

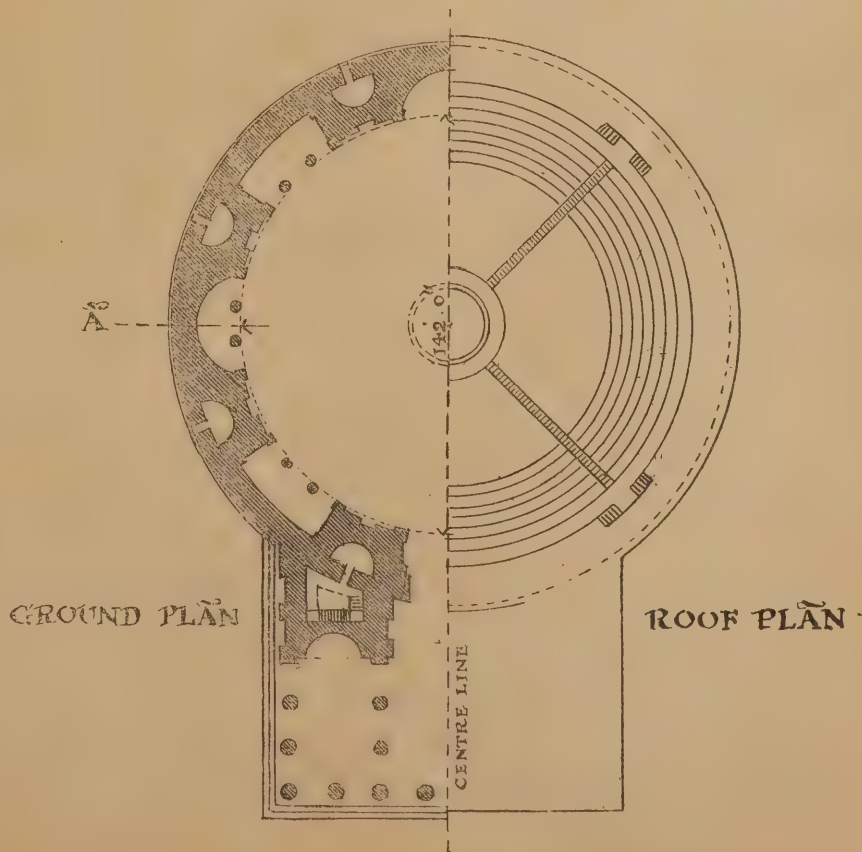
Respecting the internal construction of the dome, but little was known with certainty until M. Chedanne, in 1892, surprised the archaeological world by the results of his investigations. The theory of a simple framework of converging and horizontal ribs of brick, inclosing panels of concrete, and which had been taken to be indicated by the arrangement of the coffers, is now untenable. Neither has the more elaborate method propounded by Viollet-le-Duc, viz., a network of arches, resting on an inner system of ribs, any existence in fact. Even the evidence of Piranesi, who repaired the dome in 1743, appears to be not altogether reliable, although he agrees with M. Chedanne in showing a range of large arches at the springing of the dome over the main recesses of the rotunda.

From a report prepared by M. Chedanne, and read by Mr. R. Phené Spiers before the Royal Institute of British Architects, 1895, it would seem that these arches coincide with the vaulting of the abutment story. Their purpose is evidently to relieve the discharging arches below by concentrating the weight on the piers. They do not, however, as they rise, follow the contour of the dome, but are vertical; and although, from this fact, it is obvious that their construction would be simplified, yet the inner face of the dome is thus deprived of their direct support. It was probably to remedy this that the three smaller arches were inserted, and made to follow the contour of the dome; these have been built in to accord with the design of the coffers, and not cut afterwards, as might have been supposed.

M. Chedanne was not able to examine the construction of the upper part of the dome from the level of the fourth range of coffers, but he thinks there may be a series of arches above that level.

The rotunda—which rests on a basement, or podium, of travertine—is built entirely of brick. The tiles forming the core are irregular in shape, bedded in mortar, and grouted occasionally. Layers of tiles, 2ft. square, are introduced at intervals, to give bond, and probably serve a useful purpose in breaking the homogeneity of the mass. The walls are carefully faced with tiles, to which was originally affixed a casing of marble; that of the interior, however, only remain.

With the exception of the arches above mentioned, the dome is a mass of superimposed layers of brickwork, as in the rotunda,



without constructional radiating ribs; and thrust is entirely obviated, not only by the nature of the abutment, but by bedding the tiles with a slight downward inclination towards the exterior, a method which would allow of the dome being constructed for a considerable height, without the aid of continuous centering.

The coffers answer the two-fold purpose of adorning the vault and diminishing its weight, and the ingenious modification of the upper and lower members of each coffer, so as to obviate the effects of foreshortening as seen from below, should not be overlooked.

Both the exterior and the interior of the dome, it is believed, had originally a covering of bronze, of which remnants may still be seen in the cornice around the central opening, and in the cramps inserted in the middle of each coffer, and on the ribs.

The exterior is now covered with lead.

It may be mentioned that the main constructional lines of the interior of the rotunda are masked by the architectural decoration. This peculiarity is not, however, to be regarded as an indication of later work; for, considering the accurate disposition of the various small relieving arches—both in the dome and in the rotunda—over the columns below, it is evident that the marble enrichments form an integral part of the original design.

The manner in which the arches of the Pantheon are turned is deserving of notice. The haunches are generally formed in one deep rim, while the upper portion is turned in two or three rims, the lowermost of which would serve as a centre on which to turn the rest, thus relieving the wooden centering of that portion of the weight which would otherwise have borne most heavily on it until the completion of the crown.

The late Mr. Middleton has observed that the arches which appear outside the rotunda pass into the wall only to the depth of a tile or so. This singularity occurs in other buildings, but has not, we believe, been satisfactorily accounted for. In vaulting the hemispherical niches of the rotunda, one or two layers of large tiles, laid flat, were first turned on light centering to the contour of the vault; the filling-in was then laid directly on this. Sometimes, in the case of barrel vaults—as at the baths of Caracalla—a skin of tiling is found, over which are turned brick rims in the ordinary way. This latter method may also apply to the barrel vaults of the Pantheon, as shown in the sketch from M. Choisy.

Whether intentional or not, it is evident that the system of construction generally adopted imparts to the structure a moderate degree of elasticity, and to which perhaps it is mainly owing that, while some other domes have been seriously fractured, that of the Pantheon has successfully withstood the numerous seismic shocks to which it has, in common with others, been exposed, and remains to this day the best preserved monument of ancient Rome.

HISTORICAL SKETCH.—Materials for a history of the Pantheon are extremely scanty. The inscription on the frieze of the portico states that the latter was erected by Agrippa—consul in the time of Augustus—27 B.C. This portion formed part of a temple dedicated to Jupiter Ultor; but from inscriptions stamped on the tiles used throughout the rotunda, it appears to be conclusively proved that the dome, with its supporting structure, cannot be earlier than the second century A.D.

The probable history is that the original rectangular cella of Agrippa's temple having been destroyed by fire, the rotunda was erected in its place by Hadrian, who retained the portico; and that in the time of Septimius Severus, A.D. 139, the portico was taken down and rebuilt, with certain modifications, on a higher level, the floor of the rotunda being 6ft. above the original level of Agrippa's temple.

In A.D. 608 Pope Boniface obtained from the Emperor Phocas permission to consecrate the building as a Christian church, and to this circumstance chiefly may be attributed its excellent preservation.

Having been previously abandoned, it probably passed into the hands of the Christians with but little alteration.

POSITION OF THE WELSH TINPLATE TRADE.

FOR the last seven years the Welsh tinplate industry has called forth the special attention of politicians, business-men, employers, and workmen. This erstwhile Welsh prosperous industry excited the enterprising ambitious American, who was our chief customer, to an effort to establish tinplate making as one of the industries of his own land. To accomplish that in an ordinary way was impossible, for Welsh tinplates were placed in America at a price that made it impossible for the American manufacturer to produce them. A successful appeal was made to the legislature to establish a high tariff. This has varied from 1891, when it was embodied in what was known as the McKinley Bill, from 2 cents per lb., to the recently passed Dingley Bill, in which it is set at 1½ cents. per lb. To thoroughly realise how prohibitive this tariff is, it must be compared with the value of tinplates in Wales. At present a box of 108lb. C. 20 by 14 will be delivered at Swansea at 9s. 6d.; a tariff of 1½ cents. per lb. works out at 6s. 9d.; so that the tariff imposed amounts to

OVER TWO-THIRDS THE VALUE

of the Welsh article. Again, much discussion has taken place about reducing wages to meet this competition by tariff. The suggestion becomes preposterous when it is known that the total sum per box paid the Welsh tinplate worker is 1s. 8d. per box. The result of the imposition of this high tariff has been to exclude Welsh plates from entering American ports except in the case as provided by the Dingley law, that a rebate of 99 per cent. is allowed on all tinplates used as canis or packages for exportation. The effect of the American tariff is seen from the following figures supplied by the Board of Trade:—In 1892 we exported to America 276,469 tons; 1893, 255,628 tons; 1894, 227,879 tons; 1895, 222,901 tons; 1896, 113,051 tons.

THE REDUCTION IN PRICES

has not been less remarkable. In 1892 the price of a box of plates, Siemen's steel, would be 12s. 9d.; in 1897 it is only 9s. 6d. The Americans are not using less plates than formerly, but now they supply their own requirements, and this is done at thirty-nine concerns with 200 mills. The great loss of trade indicated by the above figures has produced much loss of capital and a great deal of misery in Wales. In 1892 we had 500 mills at work; to-day but 270 mills. Some works which in 1892 were of considerable value are practically valueless to-day. Hundreds of men who used to get their living at tinplate works have become colliers, and others have found other means of earning a living. However, it is fairly safe to assert that the Welsh trade has received its worst blow, and it is an undoubted fact that the great attention called to tinplates has done a great deal to increase consumption, for people have of late found use for the steel sheet and tinplate for purposes not dreamt of a little while ago. The result is that, whilst losing the American trade, the trade with other countries has rapidly increased. In this connection the figures of the Board of Trade for the last seven months supply

REMARKABLE EVIDENCE.

For the first seven months of 1896 was sent to the United States 73,552 tons; in the seven months of 1897, only 56,564 tons; showing a loss in trade of 16,988 tons. To other countries was sent, in 1896, 87,116 tons; in 1897, 110,696 tons of tinned plate; thus making up not alone the loss of 16,988 tons to the States; but over and above that an increase of 6592 tons of tinned plates. But this is not all, for a large increased export of black plates to other countries than America is recorded. In the seven months of 1896 was exported 2356 tons of black plate to the United States; in 1895 for the same period only 406 tons; to other countries in 1896 24,979 tons; whilst in 1897, 33,801 tons were

exported, or an increase of 8812 tons of black plates, which, with the increase of 6592 tons of tinned plates, makes a total increase for the seven months of this year of 15,404 tons, or, in other words, the work of twenty mills. It is these figures, doubtless, that influenced Sir John Jones Jenkins to say that in eight years there would be made up in the Welsh tinplate trade its loss of the American market. As far as can be ascertained, the mills going in Wales just now are

NOT SUFFICIENT TO MEET THE DEMAND,

except on the supposition that instead of thirty-six boxes per shift some forty-six boxes are made, and that average is certainly not reached. A change must evidently soon come about in the present unsatisfactory position, according to which excellently-situated works cease to produce rather than sell at a loss. At present works having 270 mills are reported as going, but at some of these works mills are idle. Stocks are low in other places than Swansea, whilst here, the chief shipping port, there is found much to indicate that scarcity of tinplates is not far off. On August 14th the stocks of Swansea were 162,208 boxes; August 21st, 111,615; and last Saturday week only 86,998 boxes, the lowest stocks on record since the great clearance after the McKinley boom. In view of these facts, it is surprising that tinplate makers are not able to secure better prices. Some of their number do not hesitate to say that it is entirely their own fault. There is no doubt whatever that orders have lately been withheld or only offered at prices that will discount the anticipated downfall of wage rates. Seemingly, buyers are likely to be disappointed, for it is beyond doubt that there are men among the workmen who read the signs of the times, and it must be said that the way the tinplate worker has fought for his list during the last six months leaves but faint hope that he is going to give up now when on the eve of seeing altered conditions.

The demolition of Hornsea Pier has been commenced, by order of the purchasers, Messrs. Ellis, Tattersall, and Co., of Manchester.

The Bishop of London has consented to open the New Technical and Art School at Leicester on October 5, which is now being completed in the Newarkes at a cost of about £40,000.

The freehold property known as Avondale Hotel and Hatchett's Restaurant, Piccadilly, was recently sold by Messrs. Douglas Young and Co., by private treaty. The price was £127,000.

The tender of the Imperial Wood Pavement Company, 46, Queen Victoria Street, has been accepted by the St. George's Vestry, W., for the laying down of about 25,000 yards of wood pavement.

ST. GEORGE'S CATHEDRAL, Southwark, the largest Roman Catholic Church in the metropolis, is to be further enriched by a new stained-glass window, as a memorial of Dr. Coffin, third bishop of the diocese.

The Leeds Corporation Markets Committee has decided to ask the City Council to grant £2000 for the purpose of lighting by electricity that portion of Vicar's Croft which is being covered in as part of the markets.

A PETITION has been numerously signed against the laying down of asphalt in Victoria Street. The petitioners aver that the "sweep" leading into Victoria Station should be paved with wood, otherwise there must necessarily be numerous accidents, especially during the winter months or after a slight shower of rain.

The Sanitary Institute, which is now holding its annual congress, asked the Leeds Corporation to help to modify the expense that will be entailed by illuminating the Health Exhibit on, which is to be an important item in the programme, without charge. As the request included the erection of gasfittings and a free supply of gas in a large building for nearly a month, the Gas Committee, at a recent meeting, unanimously expressed regret that it did not feel justified in acceding to the proposal.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
September 15th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

It is probable that, in view of the many improvements which are taking place in connection with the new Admiralty Buildings in Spring Gardens, the old and historic chapel at the corner of New Street will, ere long, become a thing of the past. The building, which is now used by the Admiralty authorities as a Government office, has been styled a chapel-of-ease to the parish of St. Martin-in-the-Fields. It occupies the site of the old Spring Gardens Chapel, where a number of French Huguenot refugees settled in the reign of William III. This building, together with the Thatched House Tavern adjoining, was destroyed by fire in 1726. Five years later a new chapel was built by the Hon. Edward Southwell, and subsequently the present one was erected by a member of the De Clifford family.

THE restoration of the north gable of the west front of Peterborough Cathedral has been completed. Those portions of the great arch, and of the gable above it, which have been taken down and rebuilt contained in all 2006 facing stones; of these 170 only were found so decayed that they had to be replaced by new ones, and the remaining 1836 have been put back again into their original positions. The central and southern gables, portions of which are in a very dangerous condition, will next be dealt with.

NEWLYN must look to its laurels. As one of the principal haunts of artists outside the "forty" it has long since been famed, but even the scenery of this charming west country village must become monotonous after a time, and the "Newlyn School" is threatened. A rival has arisen, a dangerous beauty, too, whose charms have all the piquancy and freshness of the very latest *débutante*. Brixham, that picturesque, but little known fishing village on the shores of Torbay, is this year being besieged by geni of the brush, and many an ambitious artist has had to turn sorrowfully away owing to lack of accommodation. Next year's exhibition at Burlington House will be strong in landscapes and seascapes from round and about this historic town, and Brixham's position as an artistic centre will probably be assured.

TURNER's well-known house at Twickenham will be brought under the hammer towards the end of the month. The property came into the possession of the famous landscape painter about 1813, when, tired of an exclusively town life, he sought a retreat in a handy situation to which he could retire when the worries of his profession or the exigency of social callers made his residence in Queen Anne Street intolerable to him. At the time that Turner purchased the little place there was a small house upon it; but, being dissatisfied with this, he designed the existing building, which he at first called Solus Lodge, but which was subsequently known as Sandycroft Lodge. The artist during his sojourn at Twickenham painted his "Thames at Kingston Bank" and

the well-known picture of Richmond Hill, as well as many other works of less note. Mr. Ruskin is very severe upon these productions. He refers to them as "Vulgaries which may perhaps be best expressed by the general term 'Twickenham Classicism,' as consisting principally in conceptions of ancient and of rural life such as have influenced the erection of most of our suburban villas." The contemptuous estimate is very far from being upheld by the bulk of art critics, who place a high value upon the work of the Twickenham period.

GENERAL interest seems to have been excited in Yorkshire by the alleged destruction of the identity of Scarborough Castle Hill by the scarping down of its beetling crags for the purpose of making a road round the base. It is, however, fully recognised that the work is absolutely essential for the preservation of the hill itself, and, moreover, of the proposed road, which might at any time be at least partially destroyed, to say nothing of any contingent loss of life by the collapse of the overhanging portions. A serious slip of the nature which the work is designed to prevent took place on Aug. 24, 1890. Another alteration in the appearance of the cliffs, the proposed erection of a revolving tower on the same lines as that at Yarmouth is also provoking hostile criticism, on the ground that Scarborough has already sufficient natural points of vantage for observation without the erection of such a structure.

THE Earl of Londesborough, in protesting against the embankment scheme at Scarborough, says: "The north face of Castle Hill is irretrievably ruined, but I hope that if the attention of the public is promptly called to this vandalism further progress in the work of destruction may be stopped, and what still remains of the Castle Hill be preserved. As a young man I represented Scarborough in Parliament, and it does grieve me to see the grand old cliff ruined from the mistaken idea that visitors will care to drive along the foot of a stony slope and pay for the privilege of doing so. In other places they subscribe handsomely to preserve their ancient monuments, but Scarborough will have to pay probably £100,000 to destroy her greatest attraction."

SUNDERLAND, of late years, has been noted for its rapid expansion and architectural developments. Improvements in commercial properties are now considered essential in the Wearside Borough; consequently, the old business places are fast disappearing, and more palatial ones are being reared in their stead. Not only is this the case on the south side of the river, where most of the business is concentrated, but it is equally manifest in the parish of Monkwearmouth across the bridge. During the last few days one of the best-known hosteleries in this ancient part of the town has been in course of demolition in order to rebuild one of larger dimensions and importance. This relic of the past was more than 200 years old. The house referred to is the old Wheatsheaf Inn at the west end of Roker Avenue, and on a line with Newcastle Road. This inn did a large business in the days when the coaches were running between the Wear and the Tyne. The coaches made a halt at the 'Sheaf after leaving the George and the Golden Lion Inns, and crossing the camel-back bridge, as it was then, with an extra horse. The new building to be erected on the site of the old one will be in every way adapted to meet the requirements of the district in which it is situated, with extensive cellarage and modern hotel accommodation.

SOUTH KENSINGTON has for some time been introducing wood-paved roads, and as some conflict of opinion has arisen as to the relative merits of the cubes and asphalt, it may be interesting to state the experience in this district. When it was decided to do away with the macadam surface, which was found to be very costly to maintain under the conditions of a constantly increasing traffic, the Surveyor to the vestry of St. Mary Abbot's

made a special report, in which he pointed out: "The general information which I possess enables me to state that at present prices it is advisable, as a matter of economical road maintenance, to pave with 5in. creosoted wood blocks any macadam road now costing 1s. per yard per annum to maintain, irrespective of cost of scavenging, and, further, I am of opinion that it would be sound parochial economy to lower such standard of conversion to 10d., as the general beneficial result to the district at large would, in my judgment, more than counter-balance the 2d. per yard loss on the actual cost of maintaining the particular road." Acting on this recommendation, a large sum of money was spent by the Vestry, and it is satisfactory to know that the result is quite up to the anticipation. In the last report of the local authority the surveyor expresses the conviction that "a wood-paved road surface will last equally long without repaving, whether it is paved with blocks 5in. or 6in. in depth, as the renewal is necessitated, not by the blocks being worn out, but by the curvature of the surface wearing down below the level at which the surface water will run to the side channels. Still shallower creosoted deal blocks, viz., 4in. deep, are under trial in Sydney Place, South Kensington, having been laid down in November, 1889, and at the present time are in good condition, and have not been patched or repaired."

A LITERARY landmark of South Devon will disappear this autumn. This is that charming old inn, the Ferry Boat, at Coombe Cellars, on the banks of the River Teign, between Teignmouth and Newton Abbot. Built of Devonshire "cob" walls, and picturesquely thatched, it has for many years past been a place of pilgrimage for boating parties on picnics intent. Some few years since Mr. S. Baring-Gould, the author of that well-known novel "Mehalah," made Coombe Cellars the scene of another novel, "Kitty Alone." It is, indeed, a place well suited for literary and romantic treatment, being placed on a little promontory of that broad sea-salt estuary of the Teign, surrounded with sturdy sea walls, and commanding impressive views of the southern town of Dartmoor. All who know Coombe Cellars will learn with regret that it has been decided to rebuild this quaint old inn.

It is very gratifying to see that the main portion of Mr. Tate's noble scheme has no sooner been thrown open than the next has been commenced. Excavators are now busily at work preparing for the foundations of the extension, which will comprise even more gallery space than the existing building. It will occupy somewhere about the same extent of ground, but as there will be no vestibule, &c., the whole of the ground will be available for galleries, of which there will be nine, in addition to a studio and restoring room. The new portion will extend out at the back of the present building, and corridors will run through from the central hall.

THERE never was, probably, a place richer in Roman remains than the City of London, a fact which is emphasized at all periods of the year during the work of excavation in the public streets or within the confines of private property. Not long since some workmen were excavating for building purposes in Queen Victoria Street, near the corner of Walbrook, and at a depth of 26ft. a shovel unearthed a little collection of Roman remains, which have since found a permanent resting-place in the Guildhall Museum. The "find" consists of a Lagena, a bronze balance, and a large iron nail. The Lagena is a gracefully formed, two-handled vase of fine buff ware, about 8in. high by 7in. at its greatest diameter. The neck is simply ornamented with two parallel grooves, and a single groove runs down the centre of each handle. Equally interesting is the large iron nail, which measures from the point to the top of its large conical head 12½in., the head being 2in. in diameter. Such nails were used in buildings to fasten beams and large timbers, of which the houses of ancient London were, of course, formerly constructed. The

balance, or *libra*, is made of bright yellow bronze, and is about 14in. in length. At each end of the beam is a double hook, from which the articles to be weighed were suspended, while at the centre is a small loop for the *ansa*, or handle. One half of the beam is divided into fractional parts, like a steelyard, so that by means of a sliding weight, which is unfortunately wanting in this specimen, the difference between two articles could be arrived at without employing a number of fractional weights.

It having been announced that Professor Church is to "restore" the two great stereo-chrome wall-paintings by Maclise—the Nelson and Wellington—in the Royal Gallery of Westminster Palace, we are asked to state that further "cleaning" of those great pictures is all that he has undertaken. No re-painting or restoration will be attempted, nor, indeed, is such treatment required. A preservative solution will probably be applied to one or both of the pictures, the work being carried out next month. Four of the glazed corridor paintings will also receive attention.

WYCH STREET is a very old thoroughfare. In the olden days it formed part of a lane leading from the north side of the Strand to Broad Street, St. Giles, and was designated the *Via de Aldwych*, which was in more modern, but still ancient, days colloquially shortened into "Wych," and the familiar "street" substituted for the "via." Some of the houses erected in its more prosperous days still remain; but it will not be long before they are all cleared away. They would probably not have been standing now if it had not been certain that great improvements would sooner or later take place in the neighbourhood, their owners being consequently willing to wait the course of events. Some of these improvements are at last to be carried out, and in the next twelve months the south side of Holywell Street, which runs parallel to Wych Street, will be pulled down. The change will affect the whole neighbourhood.

SOME important additions have recently been made to the Egyptian sculpture gallery of the British Museum. Among the most important is a very fine limestone figure of a man, who, according to the inscription, was called *Nekht-Amsu*. He appears to have been a scribe attached to one of the temples, possibly to that of Ra at Heliopolis. He is represented kneeling, holding a tablet in front of him, inscribed with a beautiful prayer to the Sun god. Above the inscription is the disc of the sun in a boat in front of which *Nekht-Amsu* is represented in an attitude of adoration. The age is possibly about B.C. 1500. There is also a statue of a man called *Ka-mes*, who would seem to have been a keeper of the sacred cattle of the god Amen. The inscription on this is well cut, and may be read with ease. Specimens of the work of later artists of the Ptolomaic period have also been exhibited. Among these the best is probably the statue of a king, represented walking with his hands by his side, according to the custom of the period.

THE third annual report to the Secretary for Scotland by the Commissioners and Trustees of the Board of Manufacturers in Scotland as to their proceedings in regard to the National Gallery, School of Art, Museum of Antiquities, and other buildings and establishments under their charge, for the year ending September 30th, 1896, has been issued as a Parliamentary paper. It states that the number of visitors to the National Gallery had decreased as compared with the preceding year by 4379. The portrait of Mrs. Kinloch, of Gourdie, by Gainsborough, had been added to the collection. The returns for the School of Art for the year showed a total decrease in the number of students of thirty-nine. The portraits added to the collection during the year had been: by bequest or in gift, ten portraits; and by purchase, three portraits. The Commissioners report that Mr. John Ritchie Findlay, one of the Commissioners of the Board, to whose liberality the erection of the

Scottish National Portrait Gallery buildings is due, has presented to the Board the sum of £10,000 for the decoration and ornamentation of the interior and exterior of these buildings, on condition that a well-considered general scheme is matured under the direction of the Commissioners, and that the entire sum be expended within ten years from the date of the gift. During the year there was completed and presented to the Commissioners of the Board, in trust for the nation, by Miss Mair, on behalf of a committee of Edinburgh ladies, a group of portrait statues, representing Mary, Queen of Scots, Maitland of Lethington, and Leslie, Bishop of Ross. This group now occupies the large niche on the east gable of the buildings.

At the rear of Inigo Jones's banqueting house the fine bronze statue of James II., which has stood for over 200 years in the comparative obscurity of Whitehall Gardens, has just been removed to a more public position in the garden adjoining Gwydyr House, Whitehall, now occupied by the Charity Commissioners. The statue, which is draped in Roman garments, once thought absolutely essential to dignity and high Art, is one of the best pieces of sculpture to be seen in London, and well merits the wider range of admiration which its new position will bring it. It is curious that there should always have been a certain degree of doubt as to the authorship of so fine a piece of work, generally attributed to Grinling Gibbons. In Peck's "*Desiderata Curiosa*" (vol. ii., p. 50) is a list of the various benefactions of Tobias Rustat, Esq., "a very simple, ignorant, but honest and loyal creature" (says Evelyn), who was page of the back staircase and keeper of Hampton Court. The list includes this entry: "A free gift to their majesties, King Charles II. and King James II., of their statues in brass; the former at Chelsea, the other at Whitehall—£1000." Walpole tells us that "Vertue met with an agreement, signed by Gibbons himself, for a statue of James II., the price £300, half to be paid down on signing the agreement, £50 more at the end of three months, and the rest when the statue should be completed and erected. Annexed were receipts for the first £200, Aug. 11, 1687. The paymaster, Tobias Rustat." Dallaway, in a note on this passage, suggested that Vertue had made a mistake in the name, and had copied James II. for Charles II. Nevertheless, he was inclined to attribute the statue at Whitehall to Gibbons, because he knew of no other artist of that time capable of it. Dallaway was apparently unacquainted with the note in Peck, and also the following, which occurs in the "Autobiography of Sir John Bramston" printed for the Camden Society: "On New Year's Day (1686-7) a statue in brass was to be seen (placed the day before) in the yard at Whitehall, made by Gibbons, at the charge of Toby Rustick, of the present king, James the 2nd." Sir John probably ante-dated the event a year or so, but he speaks of it as a matter of contemporary knowledge, and verifies the note of Vertue on which Dallaway had thrown doubt. The late site of the statue is one of the quietest spots in all London, although, 20yds. off, vehicles of every description stream up and down all day long, and continual crowds of people throng the pavements. The old house which forms part of the Board of Trade offices, half smothered with virginian creeper, and its forecourt bright with beds of flowers, is probably destined to come down at no distant date in connection with the building of the new War Office.

THE excavations that are being carried out near the Casino, at Baden-by-Zurich, have brought to light many relics of the time when this district was the great *entrepôt* of the Roman army in Transalpine Switzerland. Interest was first aroused by the discovery of the site of an old Roman military hospital, in the interior of which were found various surgical instruments. Within the last few days, however, a still more valuable "find" has been made in the shape of a villa, which, judging by the treasures already exhumed, must have belonged to some wealthy and art-loving Roman.

CONSIDERING that they are both inhabited by an English and English-speaking race, and are not very dissimilar climatically, no two cities in the world, probably, differ so much as London and New York. Even Paris and London, or Berlin and London, although not peopled with men who speak the same language, have more points in common than London and New York. In the latter city nearly everything seems to be done on an entirely different plan from that which obtains here. London's buildings, unless they are newly built, all have a grimy appearance; the buildings of New York, put up a hundred years ago—there are several on the east side—are as clean as when built. This is owing to the fact that a coal similar to anthracite is burnt; consequently the atmosphere does not become choked with soot, and fogs are unknown. London, again, has its Metropolitan railroad underground; New York has it—or, rather, them, for there are several—overhead. And this brings us to another point. The city on Manhattan Island is about as noisy a one as can well be found. One reason for this is the overhead railroad, the clatter of which is deafening. Another reason is the shocking condition of the roads. Broadway is more or less reasonable, but some of the Avenues—Eleventh and Avenue B, for example—are in such a state that, after a rainstorm, one may step into a puddle eight inches deep in the middle of the road. This, of course, makes the traffic more noisy than it otherwise would be, and as all the roads practically are paved with cobbles, the noise when the traffic is in full swing, and a train is passing over one's head, is more like the riveting room of a big works than anything else. The trams have stoves in them during the cold weather. Why should not this plan be adopted in England? The extra expenses would be but very small. In the summer these cars are not used, but instead they bring out open trams, built on the principle of our garden-seat omnibuses—a vast improvement on the conveyances in vogue here. None of the trams, however, are built so that passengers could ride on the top; but there is a reason for this, and that reason is the overhead railway.

THE report that a plan has been formulated for enlarging Billingsgate Market by means of a floating covered way, extending the whole length of the Customs House Quay, and of sufficient width to give an addition of four times the size of the present site, appears to be somewhat exaggerated. It would appear that the accommodation afforded by the two floating pontoons moored alongside the river front of the market for the purpose of landing the cargoes of incoming fishing boats is insufficient, owing to the increase in the quantity of fish sent to the market. All the Corporation has decided to do is to make two new pontoons outside the Customs House Quay.

MESSRS. KEGAN PAUL, TRENCH, TRUBNER, AND CO. will shortly publish the text of the valuable Coptic Psalter discovered about two years ago in Upper Egypt, and now issued under the editorship of Dr. Wallis Budge, of the British Museum. This unique manuscript was found by Egyptian peasants in the ruins of an ancient Coptic monastery, enclosed in a stone box, which had been firmly fastened into the ground. It was clearly prepared for the use of the Monastery, and hidden in some moment of peril, and its discovery bids fair to rank among the greatest of the great "finds" which have been made in Egypt during the last ten years. When the volume reached England the binding could only be opened with difficulty, and the papyrus leaves were brittle. Dr. Budge, therefore, lost no time in transcribing the manuscript, and the text is now printed page for page and line for line with the original. The Coptic Psalter is in papyrus MS. of 156 leaves, measuring 11½in. by 8½in. The quires are twenty in number, and are signed with letters. All the pages were originally numbered with letters, one column of text containing thirty-one or thirty-two lines occupying each page. The handwriting is fine and bold, but careful, and there is no

coloured ornament. It should be noticed also that the manuscript contains the spurious 151st Psalm—a rare and interesting inclusion.

It is not often that monuments to illustrious Frenchmen take so practical a form as that which has just been inaugurated amidst the desolate rocks of Penmarc'h, on the Breton coast. Some little time ago Mme. de Blocqueville, a daughter of Marshal Dayoust, Duke of Auerstadt, left the sum of £12,000 sterling to perpetuate her father's memory by the construction of a lighthouse. The Government approved of so excellent an idea, especially as at that moment the Penmarc'h light was getting obsolete, and trebled the amount of the lady's legacy in erecting the lighthouse. This is now the most powerful beacon that France possesses, quite outdoing the Heve light. Its electrical illumination is stated to be of ten million candle power, and, placed more than 180ft. above the sea, it is visible at a distance of sixty miles. On the summit under a canopy stands the statue of the great soldier looking forth over the wide waste of water.

MR. PERCY FITZGERALD writes:—"There is not much to note in old public-houses: they are common—too common, though sometimes picturesque when by the roadside; but with the Derby Street 'Red Lion' is associated a rather pathetic passage in the early childhood of the young, struggling 'Boz.' I can never pass it without the scene, now some eighty years old, rising up before me—particularly as it has been described by him twice over in the most vivid fashion—once in his painful little 'Autobiography,' and later in his 'David Copperfield.' He was such a little fellow—with his poor white hat, little jacket, and corduroy trousers—that frequently when he went into a public-house for a glass of ale they didn't like to give it to him. "I remember one evening that I went into a public-house in Parliament Street, which is still there (1847) though altered, at the corner of the short street leading into Cannon Row, and said to the landlord behind the bar: 'What is your very best—the very best—ale a glass?' 'Twopence,' says he. 'Then,' says I, 'just draw me a glass of that, if you please, with a good head to it.'" The landlord looked at the poor child with a strange smile. He said something to his wife, who came out from behind the bar with her work in her hand, 'and joined him surveying me. Here we stand all three before me now, in my study in Devonshire Terrace.' They asked him many questions, to all of which 'that I might commit nobody I invented appropriate answers. They served me with the ale, though I suspect it was not the strongest on the premises, and the landlord's wife, opening the little half-door and, bending down, gave me a kiss that was half-admiring, half-compassionate, but all womanly and good I am sure.' A picture really worthy of the 'Sentimental Journey.' The passage in 'Copperfield' repeats the story, if not in the same words, at least in the same spirit. The house is somewhat altered; but we can still recognise the back parlour whence the good-natured landlady came out to look at him. Let us hope that no spirit of vaulting ambition will lead its proprietor into wholesale altering or rebuilding, and that he will cherish the memory of little 'Boz's' glass of ale. Members of Parliament, as they hurry down Parliament Street to 'the House,' regularly pass an old-fashioned public-house—in form and general aspect rather gone-by, like the clothes of an old club member of the forties, but striving to keep up with the times. It stands at the corner of Derby Street, facing a club, and is called the Red Lion. The noble beast, spiritedly carved, is prancing rampant over the doorway."

The experience of several years past has made it very well understood in the reading-room of the British Museum that for purposes of study the length of the day is deceased with its natural increment, and conversely. The end of August, for instance, coincided with the close of the fourth month, dating from the beginning of May, during which the reading-

room has been open not later than seven o'clock in the evening. This period covers, of course, the months during which it can be kept open with practical advantage, without having recourse to artificial illumination, leaving the eight months' period of shorter days, from September to April, both inclusive, to be eked out by the electric light until they become an hour longer than those of the long days of summer and sunshine. Ever since the most valuable introduction of electricity for the purpose of lighting the reading-room, the authorities have constantly been on the *qui vive* to discover how the service could be improved, and various devices have been adopted for the attainment of a greater efficiency. The lighting was originally effected by five large globes pendent from the roof, which five or six years ago, whilst somewhat diminished in size, were increased in stability, and were supplemented by a system of incandescent lights so arranged that the direct advantage of one of them accrued to each individual reader. A year or two ago a further service of incandescent lights was arranged, by means of which the titles of books on the shelves running round the room, and up to that time directly under the shadow of the projecting galleries, were clearly discernible. The opening of the present electric season is distinguished by another addition to the facilities of study—this time as applied to the catalogues and bibliographical and other works which occupy the inner and outer desks which form the concentric outworks of the heart of the reading-room.

ONCE more the question is being raised of the advisability of constructing a new lock on the Thames at or near Putney. The proposal on this occasion comes from a body styled the Thames Improvement Committee, which has just issued a report wherein the results of investigations made during the past summer are set forth. In this document some striking facts are given demonstrating the importance of the new work, and showing what beneficial results would follow from its execution. Unquestionably a scheme like this, which would do away with the unsightly mud banks about Putney and Hammersmith, and give a magnificent open stretch of water at all times, has much in its favour. But experts are not quite agreed that the river could be impounded at Wandsworth without serious detriment further down. It has been found that the construction of the weir and lock at Richmond has had the effect of so materially reducing the level of the water immediately below that place as to make navigation at certain states of the tide almost impossible. This has caused considerable inconvenience, and it has also given rise to grave misgivings as to the sanitary consequences likely to flow from the undue depletion of the channel. To construct a new lock below Putney, it is believed, would be to reproduce the evil in an intensified form in the important part of the river which flows between London Bridge and Wandsworth.

To the number of statues of living persons may be added that of the Prince of Wales, on the Temple Bar Memorial. There is, however, a ludicrous effigy of the Prince to be seen, in stained glass, in Plymouth Guildhall. That building was completed in 1874, and the chief feature of the Great Hall is a very fine series of stained-glass windows, in which is set forth the history of Plymouth, ending with a representation of the opening of the Guildhall by the Prince, who appears in the midst of a crowd of notables, silk hat on head, with black frock coat and lavender trousers. Stained glass is so entirely antipathetic to the presentation of modern costume that the utter incongruity of this example generally amuses the stranger much more than anything else in Plymouth. A more than life-size equestrian effigy of the Prince, in bronze, exists in India. A cast of this was a familiar object at the Indian and Colonial and Inventions Exhibitions at South Kensington some years ago.

THE necessity for extensive restoration at Chichester Cathedral has become urgent, and

an appeal is being made by the Duke of Richmond and Gordon, the Bishop of Chichester, and the Dean. The Executive Committee proposes in the first place to set on foot the rebuilding of the north-west tower, which has been pronounced to be necessary. Mr. J. L. Pearson, R.A., who has been appointed architect to execute this part of the work, has already prepared plans, and a builder is ready to carry out the work for £6250. It is proposed to build so much of the tower as can be completed with the funds already subscribed, and to carry on the work of completion as subscriptions come in. The Committee hopes to be able to undertake, as funds are supplied, the repair of the south transept, the renewing and repairing the dilapidated pavement of the nave and aisles, the re-erection of the nine pinnacles on the buttresses, and the restoration of the ancient library for the Chapel of St. John.

MR. BOLTON KING, writing in the Land Magazine on the cost of cottage building, says: "There is no question that concerns the agricultural labourer more than the provision of good cottages. There has probably been a levelling-up of their standard almost everywhere of late years; sanitary authorities have been more active, and the depopulation of the village has allowed the worse cottages to tumble down. But now that the depopulation is checked—at least, in some districts—the supply is often unequal to the demand, and there is a large number of indifferent cottages past repair, which sanitary authorities are slow to condemn, because their destruction would drive their inmates away, or cause overcrowding in the remaining houses. Thus, there is a serious need of more cottages in many villages, not only to replace cottages that ought to be pulled down, but to supply a present scarcity. But it is well at the outset to face the difficulties, and social enthusiasts are too often ready to assume that local authorities only want permissory powers to rush into cottage building. It is disagreeable, no doubt, to be told that it is impossible to build well-constructed five-roomed cottages to pay 3 per cent, but such is unfortunately the case. I have had myself considerable experience in building labourers' cottages, and I believe the figures I give are below rather than in excess of the average cost. Every cottage should, in the interest of health and decency, have two rooms downstairs, and three bedrooms, however small, upstairs. The outer walls should be 13 $\frac{1}{2}$ in. thick, and, unless the bedrooms are to be intolerably hot in summer, the roof should be tiled and not slated. There must be a small pantry indoors, and closet, pigstye, and hovel out of doors. There should be a quarter acre of garden ground, in the interest of the landlord no less than the tenant, for the cottagers will pay additional rent for it much in excess of the agricultural value of the land. For this reason it is undesirable to build cottages in rows. Now the plainest pair of cottages on these lines cost £300. (I have myself never built for less than £305.) Their out-buildings, constructed of rough plank and corrugated iron roofs, cost about £50. The value of half-acre of land, which must necessarily be frontage land, cannot be put at less than £15, and would often be more. Then there is the cost of paths, sometimes of roads, of water supply, and of drainage. The expenses of these will vary very considerably. In my own case roads and paths cost in rough figures £13, water £10, drainage £11, per pair of cottages.

THE total cost of a pair of cottages will, therefore, be:—Cottages £300, outbuildings £50, land £15, roads, water, drainage (say) £35; total £400. Now for the return. I charge £6 per cottage. In most agricultural districts this is the maximum cottage rent. My rates average 2s. 8d. in the pound, insurance 4s. 2d. per pair of cottages, and repairs average one guinea per cottage. The income, therefore, from a pair of cottages is:—Rent, £12; less rates £1 12s., insurance 4s. 2d., repairs £2 2s.; total, £8 18s. 2d., having a net rental of £8 1s. 10d. This makes the net return for outlay 2.02 per cent. I do not

believe that it will be found possible to reduce the cost much below the figures given above, and I believe it is the universal experience of persons building healthy well-constructed cottages that they will not pay 3 per cent. If therefore such cottages are to be built in villages, one of two things must happen. Either the cost of building must be materially reduced, and this can be done only by finding a cheaper building material. I am no expert to pronounce on the possibility of this; but some public-spirited individual or body might do worse than offer a substantial prize to any person who could discover the desiderated material. Or we must face the fact that cottages have to be built at a loss, and recognise that it is to the public interest to provide decent homes for the people, even if it means an additional burden to the rates.

It is being suggested in art circles that the forthcoming exhibition of Holbein's works at Basle, held to celebrate the fourth centenary of the birth of the artist, might be appropriately supplemented by a similar exhibition in this country. In this connection, it is interesting to recall the fact that Holbein, though a Teuton by birth, lived for the greater part of his artistic life in England. It was here, indeed, that he painted some of the most famous of his pictures. A good many of these have either disappeared or left the country; but there still remains a larger proportion of his best works than any other country can boast of. To mention only a few, there is the fine drawing of "The Queen of Sheba before Solomon," at Windsor; the important picture known as "The Ambassadors" in the National Gallery; the exquisitely finished full-length portrait of Christina of Denmark, on loan from Arundel House, at the National Gallery; quite a small gallery of portraits of his Royal patron, Henry VIII., and of celebrities of the Tudor period; and, most important of all, the priceless painting of Henry VIII. giving the charter to the newly incorporated Barber Surgeons' Company, which is the treasured possession of that Company.

THE largest block of model lodgings as yet set up in London is now approaching completion, and will probably be opened towards the end of the year. This is the third of the very successful series erected by Lord Rowton, or the company which has now taken over the business he originated and still mainly controls. The first one, it may be remembered, was at Vauxhall; the second, opened the year before last, is in King's Cross Road; and this third and largest is in Newington Butts, very near to Mr. Spurgeon's Tabernacle. The two previous ones were so exceedingly well planned, and have been so thoroughly successful, that no very material change has been made in the main features of this new building, which will accommodate about 800 inmates.

IN making some alterations to an ancient house in the town of Newbury, part of which has survived the many changes which have been made in the quaint and picturesque buildings which once adorned the streets of this historic borough, some curious and interesting internal decorations in colour have been disclosed in one of the upper rooms, which had been hidden under many coats of whitewash and layers of modern wall paper. The front of the house, which is opposite the old parish church, has been re-built at some time or other, but the main constructive parts of the premises in which this decorative work remains appear to be of fifteenth century date, the oak timber framing being very massive and roughly hewn. Colour, apparently, had been originally carried over the whole of the walls of the room, but all the traces now existing consist of a bold foliage pattern, in which a spiral ornamentation is introduced in red, black, white, and blue, on the north wall, painted on a fine coat of plaster, about a quarter of an inch thick; and above is a couplet of black-letter, too much damaged to be decipherable. On the opposite side of the room, upon an oak fascia board, seven inches deep, roughly nailed to the plate, within four red and black borders, with

floreated divisions, these are inscribed, in black-letter, what appear to be verses, enforcing some moral instruction, but one of these was entirely destroyed before the attention of Mr. Money, F.S.A., was directed to the discovery.

MURTHLY CASTLE, in Perthshire, has been the property and seat of several historic families. The castle, said to have been a Royal hunting seat for centuries, is a venerable structure, which it was designed to supersede by a new mansion. The erection of this new mansion was proceeded with until it was roofed about sixty years ago. Now it stands, like the unfinished National Monument on the Carlton Hill of Edinburgh, as an evidence of vaulting ambition. The present proprietor of Murthly is Walter Thomas James Scrymgeour-Steuart Fotheringham, and since he acquired the property large sums have been spent in improvements on farm buildings, drainage, fencing, &c. Old Murthly Castle includes a keep of unknown antiquity and a beautiful modern addition. Its interior is richly adorned with paintings and other works of art. Between the old and the new castles is a fine garden, laid out in 1669, and retaining much of its old Dutch character, with terraces, pools, and clipped hedges. The small pre-Reformation Chapel of St. Anthony the Eremita, to the north of the old castle, was gorgeously restored for a Roman Catholic place of worship in 1846, but is now dismantled. The grounds of Murthly are of singular beauty, both natural and artificial, with the "Dead Walk," or ancient yew-tree avenue, the Douglas Avenue, the Lime Avenue, the Deodora or Sunk Terrace, and every variety of hill and dell, wood and stream, carriage drive and sequestered walk. For many years the late Sir John Everett Millais made Birnam Hall, which is within Murthly grounds, his autumn retreat.

A CURIOUS illustration of misdirected scientific investigation is furnished by the unpleasant adventure of two agents of the Field Columbian Museum of Chicago, Messrs. Darcey and Allan, who have been engaged for some time collecting Indian relics for the museum. A few weeks ago they were landed, by a passing steamer, on Memalouse Island, a well known Indian burial-ground. When, on its return trip, the same steamer called at the island, the visiting scientists had secured a fine collection which filled eight sacks, and included eighty-two skulls of "braves," whose bodies had been placed generations back in the numerous dead-houses for which this island is famous. The collectors had no trouble in leaving the island with their booty, but when they reached the Dalles, Oregon, both were at once arrested on the charge of "grave robbery." They have now been sentenced to a heavy fine, and, further, to carry the skulls and skeletons back to Memalouse Island, and "replace each skull and skeleton in the same dead-house from which they had taken it." As the eighty-two skulls and thirty skeletons had become considerably mixed, this part of their task may be not a little difficult.

THE close of the present hopping season will be the signal for the destruction of the old Bull at Farleigh, in Kent, one of the oldest and most picturesque inns yet remaining in the south of England. The house, which has been licensed for about three centuries, has long been a favourite with Artists, but it is in consideration to the many hop-pickers who yearly frequent the house that its quaint old gables, latticed windows, and tall chimneys are to be sacrificed. The Bull stands upon high ground above the Medway, opposite the lych-gate of East Farleigh Church, and is surrounded by ancient elm and chestnut trees, which, it is to be hoped, the hand of the "improver" will spare. All lovers of the picturesque will regret the disappearance of the ancient hostel.

A CHURCH altogether without exterior beauty, but rich in historic association, and lately brought into prominence by frequent

reference in Mr. Hall Caine's new novel, is in danger of being closed under an order of the County Council. It is generally known as the Old Greek Church, is dedicated to St. Mary the Virgin, and is situated in St. Martin's Lane. An old inscription over the west entrance is still just readable, and it tells how the church was erected in 1677 by the help of Charles II., the Duke of York, and Bishop Compton, as a place of worship for the Greeks in London. In 1682 the church passed into the hands of the Huguenots, who had possession until 1832, when a Protestant Nonconformist body began to worship there. It afterwards ceased to be used for public worship, until Canon Wade, the rector of St. Anne's, Soho, raised a sum of £1500, purchased it, and arranged that services in accordance with the ritual of the Church of England should be carried on. It is now found that a part of the building is unsafe, and the County Council has served notices on the incumbent, the Rev. R. Gwynne, requiring him to do repairs. Mr. Gwynne, however, maintains that he has not the money, and is not liable under the decision in the Metropolitan Board of Works v. Lee, in which it was held that "the incumbent of a district church in the Metropolis, although the freehold of such church is vested in him under the Church Building Acts, is not the owner of the church within the meaning of the Metropolitan Building Act, 1855, so as to be personally liable for the expenses incurred by the Metropolitan Board of Works in respect of such church as a dangerous structure." Unless the funds can be raised there is every fear that the church will be closed.

AT last Plymouth Station is to be demolished, and a building put up large enough to accommodate the greatly developed traffic at this point. The contracts for the reconstruction and the widening of the lines into Millbay have been signed, and the plans divulged. These include provision for four platforms, instead of two as at present, with another for the Tavistock and Launceston branch. A spacious iron and glass roofed lobby will be constructed, together with booking-offices, while a roofed-in space is planned for vehicles in the station yard. In order to obtain room for these improvements, the Great Western Company has taken over the whole of one street and portions of others.

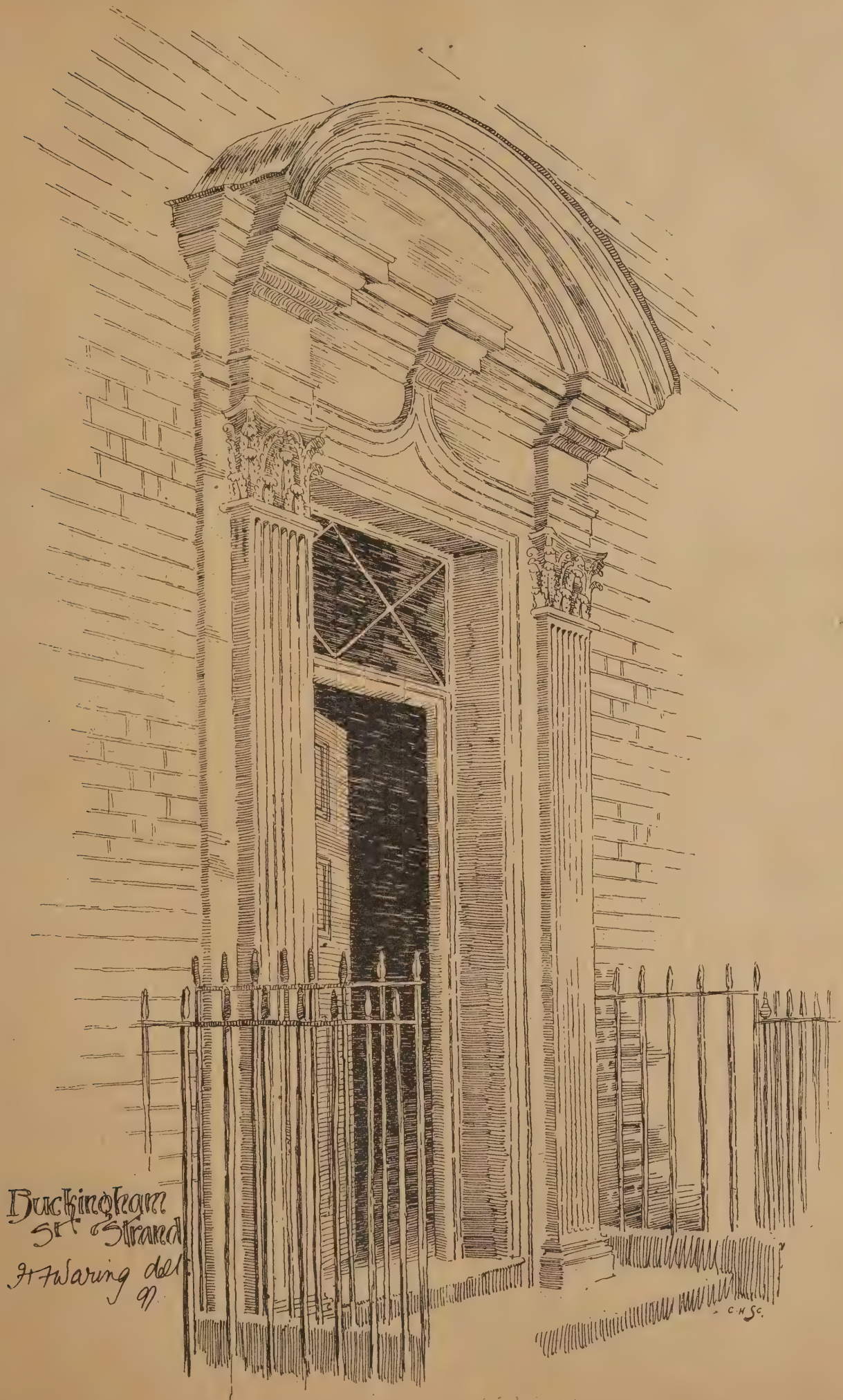
THE prospectus and time table of the Central School of Arts and Crafts, which is situated at 316, Regent Street, has just been issued by the Technical Education Board of the London County Council. The school was founded to provide instruction in those branches of design and manipulation which directly bear on the more artistic trades; admission is, within certain limits, only extended to those actually in those trades; and the school makes no provision for the amateur student of drawing and painting. The instruction is adapted to the needs of those who are engaged in the different departments of building work (architects, builders, modellers and carvers, decorators, metal workers, &c.), designers in wall papers, textiles, furniture, workers in stained glass, bronze, lead, &c., enamellers, jewellers and gold and silver workers, bookbinders, and embroiderers.

IT is not often that we are free from appeals from one or other of our Cathedrals for subscriptions to carry out necessary repairs. For a few months, perhaps, we are given a respite; but it is always a brief one, and is invariably followed by an outbreak of pathetic requests for the wherewithal to save from ruin some of the most important of our historical buildings. There has been lately one of these intervals, during which the spire of Salisbury has been strengthened, the roof of Winchester reconstructed, and the north gable of the west front of Peterborough rebuilt; and now the time has come for fresh appeals. More money is wanted at Peterborough to repair the remainder of the west front; and a sum of £12,000 or more is urgently asked for to put Chichester Cathedral into a reasonable condition.

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LONDON DOORHEADS. (FIG. 1.) SKETCHED BY H. F. WARING.



Buckingham
St Strand
H F Waring del
97

LONDON DOORHEADS. (FIG. 2.) SKETCHED BY H. F. WARING.

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Surveying and Sanitary SUPPLEMENT.

SEPTEMBER 15TH, 1897.

THE NEW DOCK AT GLASGOW.

THE Duke and Duchess of York, on the completion of their tour through Ireland, crossed from Belfast to Glasgow. It was arranged that their first important function should be the formal opening and naming of the new Prince's Dock by her Royal Highness. The new dock, hitherto known as the Cessnock, is in the heart of the city's activity on the south side of the river, close by the shipbuilding district of Govan. This central position was only possible as a result of the forethought and public-spirited action of three citizens interested in the harbour, who a quarter of a century ago realised the suitability of the site for a dock and purchased the ground when it was purely agricultural land. It had immense possibilities, however, but they got it for 7s. 7d. per square yard. Had the Clyde Trust, a public body, sought to acquire the land the price would certainly have been much higher. In the fulness of time these purchasers freely gave up the land for the same price. The increment in value is indicated by the fact that part of the site not required for the docks was sold by the trust for 40s. per square yard, and the difference in price on the area occupied by the dock works out to over £600,000. In determining the dimensions of the dock the trustees and their engineer, Mr. James Deas, were largely guided by the ambition of the shipbuilder in respect of the future Atlantic liner. The conditions necessary for speed are a long ship and great draught, and thus provision was made in the dock for canting steamships at low water up to 700ft. length on the water-line and drawing 23ft. of water. Indeed, it has ever been the aim to make the river navigable for such craft, and thus the trustees have continuously been engaged in operations for straightening the channel, and for deepening it, involving

HEAVY EXPENDITURE YEAR BY YEAR.

The dredgings each year, for instance, are now seldom less than $2\frac{1}{2}$ million cubic yards, and the cost for this alone exceeds £50,000 per year. The new Prince's Dock has been arranged, writes a correspondent of the Times, to give the maximum of quay space. The area enclosed in the dock works is oblong on plan, the greater dimension being parallel with the river Clyde, while the entrance is at such an angle that vessels steaming up need only alter their course a few points to enter the dock. This entrance is at the west end, where the dock is of maximum width, so that vessels of any size may cant before passing into and along one or other of three basins into which the eastern part is divided. These three basins are parallel with the river, and are separated by quays extending from the eastern end into the middle of the dock. The object, of course, was to secure the additional quay space. The basin nearest the river for Atlantic liners is of an average width of 222ft. ;

the other two are 200ft. wide. The quays dividing the basins are 250ft. wide, their lengths varying from 1188ft. to 1524ft. In this way the length of quays has been increased to 3764 lineal yards, or nearly $2\frac{1}{4}$ miles, while their area is $38\frac{1}{2}$ acres, the water space within the dock being $34\frac{1}{2}$ acres. The depth of water at high water ordinary spring tides varies from 31ft. to 39ft., according to position in the dock, and at low water from 20ft. to 28ft. This is

THE THIRD TIDAL DOCK

constructed at Glasgow Harbour by the trustees. Up to 1865 the sides of the harbour provided sufficient quay accommodation; the revenue then was only a-fourth of what it is now. In 1867 the Kingston Dock, with $5\frac{1}{2}$ acres of water space, was opened, the depth of water being 10ft. at low tide. In 1870 the trustees commenced the Queen's Dock, which is on the north side of the river opposite to the Prince's Dock, and is nearly as large. The total length of quay in the harbour is now $8\frac{1}{2}$ miles, the area of water space being 204.8 acres, and of quays 113.10 acres. The trustees have now the whole of the river frontage within the harbour except the site of the old shipbuilding yard of Messrs. A. and J. Inglis. An interesting point about the construction of the new dock is that the work has been done entirely by the Clyde Trust workmen under Mr. Deas, the engineer. This has been the practice for about ten years, and, managed with discriminate care, the system has been of great advantage economically and otherwise. Progress was more easily regulated. An instance of this may be given. The Parliamentary power to proceed with the construction of the new dock was obtained in 1883, but there was no immediate need for quay space, so that the work was prosecuted slowly; by 1892 the first of the three basins was partially occupied, and from this period the dock has yielded revenue—£2733 in the first year with yearly increases, until now nearly the whole of the quay space is required and

A SITE FOR ANOTHER DOCK

is beginning to interest the trustees. The system of constructing the walls differs from that elsewhere; it is long since it was first adopted, and has proved thoroughly sound, for although many of the walls in the harbour are on sand no difficulties have been experienced. Moreover, it has the merit of economy, for to give 20ft. depth of water at low tide alongside the complete quay wall costs £80 per lineal yard; to give 25ft. depth, £90; and to give 28ft., as in the later docks, £120 per lineal yard. It is known as the triple-cylinder system, and its author is Mr. Deas, who, by the way, became engineer for the Clyde twenty-nine years ago, and has all the credit of the great improvements made in the river during that period. The three cylinders are arranged in a triangle; they are formed in concrete in courses about 2ft. thick. The internal diameter of each core is 5ft. 9in., and the thickness of

concrete around them—i.e., forming the cylinders—is 1ft. 11in. The triple cylinders are made to break bond—i.e., while the two-cylinder end is to the front of the quay wall in one group, in the next the one-cylinder end is at the front. For the wall carried to a sufficient depth to give 28ft. of water at low tide there is an additional row of double cylinders behind the triple cylinders. The procedure in constructing the wall is to excavate to a considerable depth and then to place in position the first triple cylinder, to the bottom of which there has previously been bolted a cutting edge all round. This enables it to sink into the ground, when other triple cylinders are placed on top, while at the same time a grab dredger raises the material from inside the cylinders. Iron rings are subsequently used to weight it down to the desired depth. This part of the operation is similar to that for sinking ordinary iron caissons. The concrete cylinders are sunk 10ft. to 15ft. below the finished bed of the dock, and extend up to low water level. The cores are finally filled in with concrete.

THE SERIES OF CYLINDERS

are wedged with files packed around with concrete, so that a solid mass is formed of 16ft. 3in. width in ordinary cases, and 25ft. 11in. where there is the extra row of double cylinders behind. From low water level to coping the formation is of concrete ashlar, most of the blocks being two tons in weight, with granolithic face. To add further security the walls are tied at frequent intervals by wrought-iron rods extending from the face to heavy masses of concrete rubble embedded behind. A point which involved much discussion was as to whether the sheds on the quays should be single or double story. Although there are short lengths of the former, the latter has been most extensively adopted. They confer great advantages where vessels are in port for short periods, as the lower floor is used for export and the upper for import goods. Most ingenious shoots have been provided for loading wagons from the upper story, the time taken to load forty bags of grain each of 140lb. weight being only ten minutes. The test load was 10cwt. The sheds are 75ft. wide, the height of the lower story being 20ft. and of the upper story 12ft. (excluding roof principals). The cost for these sheds was 3s. 8d. per square foot of floor area, while for a single story shed of only 60ft. width the cost was 3s. 4d. Along the front of the sheds 35cwt. hydraulic cranes run on rails, and a gangway has been built at the level of the upper floor. The cranes cost £380 each. There is a water power station for the docks equipped with two sets of engines and two sets of pumps capable of delivering 200 gallons per minute at a pressure of 750lb. This, with boilers, engines, accumulators, and accessories, cost £7531. At the western end of the dock there is a 130-ton jib crane, which will be of great service to shipbuilders in the work of fitting machinery on board the steamers they build.

It was erected at a cost of £7550, and some idea of

ITS MASSIVE CHARACTER

may be formed from the fact that in working order it weighs 270 tons, excluding counter-balance weights or bed plates. The jib alone weighs 45 tons, and the radius for the heaviest lift is 65ft., or 45ft. beyond the edge of the quay, which is adequate for the broadest of ships, as it is only necessary for the crane to reach a little beyond the centre-line of the ship. There is separate tackle for lighter loads. The crane makes a complete circle in five minutes with the 130 ton load; with a lighter load it can turn in 2½ minutes. The load of 150 tons is lifted at a speed of 4ft. per minute. A graving dock is being completed, having its entrance within the new Prince's Dock. This is convenient, for vessels steaming up the river can glide into the tidal dock and then go astern easily into the graving dock. This latter is parallel to two other dry docks. The increasing exactments of the shipbuilder are here again indicated. The first dock was made twenty-one years ago, the second in 1886, and the third now, and the dimensions of all three are worth giving as showing the demands now of the builders:—

	No. 1.	No. 2.	No. 3.
Length of floor...	555ft.	575ft.	880ft.
Width of entrance (top)	72ft.	67ft.	83ft.
(bottom)	65ft.	57ft.	83ft.
Depth of water at high water ...	22ft. 10in.	22ft. 10in.	26ft. 6in.

The rise of tide is 11ft. at Glasgow, and it will also be noticed that the entrance of the new dock is the same width at top and bottom, for ships have now, as a rule, flat floors and square bilges. The body of the new dock is 115ft. wide at the top and 31ft. 8in. at the bottom of the altar courses. The floor is built specially strong, as the stratum is sand, and ample drainage is provided for. The dock is being built partly of brickwork and partly of concrete. As very few of the ships trading with Glasgow exceed 450ft. in length it has been decided to divide the dock into two lengths by gates hinged to the side walls and turning into the recesses in the walls, which are made vertical at this point. Thus, while the dock can be used by any ship likely to be built within the next ten years at least, it will be possible to put two ships in together, or even one short vessel, without the expenses of filling and pumping out the full water capacity of the dock. The gates, which will be of greenheart timber, operated by hydraulic power, will lock a ship 420ft. long into the inner compartment, leaving the outer compartment free for the use of a 460ft. ship, which, of course, could be locked in or out by the ordinary caisson gates across the entrance, independently of the inner compartment or without disturbing the ship there.

At a meeting of the Highland District Committee of Perth County Council at Logierait, Mr. Atholl Macgregor of Eastwood reported that the Committee recommended the scheme of obtaining water from Loch Ordie should not be entered upon until the inhabitants had had more experience of the existing water supply. A public meeting is to be held in Dunkeld some time in the autumn about the matter. A letter was read from Mr. George Mackay, chief sanitary inspector of the county, stating that he had had a few samples of Dunkeld water chemically analysed, with the result that organic matter was found present in distinctly excessive proportion, derived, in the analyst's opinion, from vegetable matter. The water was free otherwise from evidence of sewage or other pollution. Filtration was suggested. In view of the facts it was thought that it became the duty of the Committee to have gravitation water to Dunkeld filtered by the construction of a properly designed sand filter, which would not cost very much money, but would improve the water supply in such a manner as to make it a first-class drinking water. The Committee's recommendation was agreed to.

INSANITARY BIRMINGHAM.

AN outcry is at present being raised against "the hopelessly inadequate measures of the Birmingham authorities to deal with the noxious and highly-injurious emanations from the street sewers." Several interesting phases of the question have been presented for consideration. One writer recalls the very exhaustive inquiry into the whole question of sewerage and sewage which was instituted so long ago as 1871. In glancing through the comprehensive report which a specially-appointed committee presented at that time, it is surprising to find Birmingham to-day in a worse sanitary position than it was twenty-five years ago. The Special Sewage Committee was appointed to inquire (1) into the "best mode of disposing of, or dealing with, the sewage of the borough," and (2) the possibility of "excluding from the sewers all excreta and other animal and injurious matters that tend to cause the sewage, as now discharged, to become a common nuisance." And at the end of the twenty-six years we find an aggravation of many troubles then existing. The evils of sewer emanations are, at any rate, more pronounced, and the effects to health alarmingly serious. In passing, it is well to bear in mind—a fact emphasised some years ago—that the low death rate of Birmingham, so often quoted as a proof of its general satisfactory sanitary arrangements, is in reality no argument. "The town," as was stated in 1870, "may have the worst possible arrangements for dealing with its excrement, and yet have a credit for healthiness; and, indeed, not have the highest of all possible death rates." It appeared to the Inspector of the Privy Council, who reported on conditions in the year mentioned, that the probable reason why more mischief did not accrue from the immense store of decomposing filth within the town, was that, as a rule, the streets and houses had much open space about them. The one point upon which the Committee in 1871 laid stress, however—and this is the matter of supreme importance just now—was the high expediency of introducing a system of interception from the sewers of excrementitious and other polluting matters. Improvements in the system of ventilation and flushing of sewers might, it was felt, be introduced with advantage; but as the main object was to prevent the accumulation of gases in the sewers, and emanations in the interior or vicinity of dwelling-houses, and as these gases, to a great extent, resulted from the decomposition of faecal matter, the consideration of these improvements was deferred until

THE EFFECT OF INTERCEPTION

of such matters had been carefully observed. The matter of interception, too, was one repeatedly emphasised in the evidence taken before the committee. The Corporation was in sore trouble at that time, with two injunctions facing it, the one restricting it from accumulating the slush or sewage at Gravelly Hill, or depositing it in such a manner as to be a nuisance; and the other, which referred to the great bulk of sewage, restraining the Corporation from dealing with it so as to create or continue the nuisance complained of, or to pollute the River Tame so as to render it injurious to the health of the persons adjoining its course. After a careful comparison and consideration of the methods employed in other towns, and with the light thrown upon the question by the evidence clearly indicated, and the testimony of the principal Birmingham practitioners, the committee was "convinced of the necessity of the introduction of improvements in Birmingham, and have come to the conclusion that it is not only possible, but, considering the difficulty of dealing with the sewage at the outfall, highly expedient, to introduce

A SYSTEM OF INTERCEPTION

from the sewers of excrementitious and other polluting matters." A great part of the solid faecal matter then discharged into the sewers through water-closets might be, the committee held, intercepted by some such plan as that recommended by Mr. Edwin Chesshire. This

was at a time when water-closets were in comparatively small use, and the midden system was largely in vogue. In its wisdom the committee condemned the middens to gradual abolition, and suggested the substitution of a new privy system, based upon the principle of exclusion from the sewers, and weekly collection of all excrementitious matters, solid and liquid. The outcome was the introduction of the pan system, which, to the minds of most discriminating people, represented a greater abomination than the evil it was designed to remedy. However, all that followed in that particular direction is history of which we need say nothing. What is most remarkable to contemplate is the admitted incapacity hitherto of a great governing authority to strike an effective blow at an evil, the full significance of which in connection with public ill-health was as thoroughly recognised twenty-six years ago as at the present time. Now that one department, at least, has been aroused from a state of long-enjoyed lethargy, it is to be hoped that the investigation of the whole subject will be proceeded with in the fullest and most complete spirit, and that the combined Committees of Health and Public Works, at the proper time, may be prepared to give the city the fullest satisfaction, and redeem in some measure the good opinions of Birmingham people.

Surveying and Sanitary Notes.

THE Paddington Vestry has applied to the County Council for a loan of over £12,000, to admit of extended road paving with hard Australian wood, instead of the Swedish deal blocks hitherto used, the former, though the initial cost is greater, being found more economical in the long run, on account of greater durability. It is besides, according to a report of the Vestry's Investigating Committee, more cleanly and sanitary. The absorbing defects of soft wood, from which the hard is free, have led to complaints of bad smells, and in Marylebone, where deal has been extensively used, Dr. A. Wynterblyth, the medical officer of health, has sought to counteract the disagreeable effluvia noticeable at times by pouring an acidified solution of sodic manganate on the road. St. Pancras, as well as Paddington, has discontinued the use of soft deal altogether in favour of the West Australian hard wood. The Special Committee of Paddington Vestry, which has thoroughly investigated the relative merits of hard and soft woods as road-making material, states that if the life of hard wood as against that of soft wood be estimated by its wear, they consider that at least fifteen years may be taken for hard wood, against a life of six years for soft wood, on roads subject to heavy traffic. Assuming the average life of the present soft wood now laid down in Paddington to be seven years, its renewal necessitates an estimated yearly expenditure of £8750. Allowing the hard wood a life of twelve years only, the yearly renewals would cost £8070, showing a saving of £680 per annum. A longer life would show a larger saving. The Committee add that there is no doubt that on roads with heavy traffic the saving would be very great. The London County Council, which fully recognises the economy of hard wood roads, will, for renewals of such material, grant a loan for seven years.

MR. H. H. WAKE, engineer to the River Wear Commissioners, and his assistants have finished the survey of the docks, roadstead, sea bed, currents, rocks, &c., at Seaham Harbour, and will now proceed to prepare a plan of the whole, showing the projected improvements and enlargements. It is proposed to run out two piers, one on the north, and the other on the south side of the docks. The scheme is also said to embody a harbour of refuge. According to report Mr. Wake has found everything very favourable to the carrying out of work involved.

THE Manchester City Council has approved the sewage scheme of the Rivers Committee, which involves the making of a culvert sixteen miles long from the works at Davyhulme to the estuary of the Mersey. The cost of the work was estimated at £258,000, including wayleaves and easements. Mr. Alderman Southern predicted serious difficulties and much opposition to the bill in Parliament. The cost, he thought, would far exceed the estimate. Sir John Harwood was unable to support the proposal, and remained neutral, as he had no alternative scheme to propose. Sir John thought that, as the affluent was purer than the Ship Canal waters, they ought to be permitted to use the waterway. Who, he asked, will be the owners of the Ship Canal in the future, and have the control and the responsibility of it? Only one answer could be given. The vote in favour of the scheme was all but unanimous.

At least 700 delegates have been appointed to attend the sixteenth congress of the Sanitary Institute, which is being held at Leeds this week, and the congress is expected to be one of the most successful on record. The local committee appointed to deal with the question of providing accommodation for the delegates and other visitors is meeting with considerable difficulty. The inaugural address was delivered in the chemistry classroom of the Yorkshire College yesterday by Dr. Farquharson, M.P. Previous to that the members of the congress were received at the Town Hall, and were subsequently enter-

tained at a public luncheon in the large hall of the Yorkshire College. The Health Exhibition was opened in the buildings in Camp Road, and to-day (Wednesday) the Lord Mayor of Leeds will hold a conversazione and reception in the City Art Gallery. The remainder of the time will be devoted to the proper business of the congress, which includes three sections, dealing with sanitary science and preventive medicine, engineering and architecture, and chemistry, meteorology, and geology; and to the holding of conferences on river pollution and domestic hygiene, and conferences of municipal representatives, medical officers of health, municipal and county engineers, and sanitary inspectors. These will be held in the Town Hall and the board-room of the School Board Offices. Mr. H. Percy Boulnois, M.Inst.C.E., the city engineer of Liverpool, will deliver the lecture to congress on the evening of September 16th, in the Albert Hall. In the same hall on the following evening, Dr. Philip Boobyer (medical officer of health for Nottingham) will deliver a popular lecture. The hon. secretaries are Dr. J. Spottiswoode Cameron (medical officer of health for Leeds), Dr. A. E. Pearson, and Mr. W. Spinks, Assoc.M.Inst.C.E.

THE Wentwood water scheme, which is designed to supply the needs of Newport for the next fifty years in the matter of a pure and abundant water supply, is again to the front. The poor puddle trench, which will have to bear the enormous pressure of 300,000,000 gallons of water, has had a bad

time, because a safe basis did not come out at the depth assigned, by a 50ft. or 60ft. or so, and because a rift appeared in one bit of the concrete with which the trench is being filled. Mr. Baldwin Latham is still on the spot. He is understood to believe wholly in the ability of the puddle trench to be sound and water-resisting to the utmost; but he suggests, if the authorities want to make assurances doubly sure, an inner wall or curtain of concrete, say 24in. thick, to help to take off portion of the pressure on the main embankment. This, or a further strengthening of the puddle-trench itself by increasing the horizontal width of it, and making it to slope at a less angle, like the splendid dam at the Liverpool water reservoir, will probably be found to be the right course. The cost of this further work will be an additional £15,000 or £20,000. Already £100,000 have been spent on the undertaking.

MARBLE deposits are known to exist in several districts in New South Wales, but they have not received the attention their importance deserves. Fine samples of red brown to almost black can be obtained near Bathurst, and a beautiful grey tint from near Mudgee. A nicely marked brown is obtainable in the neighbourhood of Molong, and a pure white from near Newbridge, said to be equal to the second class marble from the famous Carrara quarries. A deposit near Rylstone is of a black colour with white streaks and gold markings. Immense deposits of green serpentine also exist in the vicinity of Lucknow, which are well worth attention.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Sept. 17	Elgin—Artisans' Dwellings at Maisondieu...	Elgin Building Company, Limited	G. Sutherland, A.R.I.B.A., Elgin.
" 17	Horton—Additions, &c., to Lask Edge Chapel		H. Clews, Horton.
" 17	Taunton—Alterations, Magdalene-street	Committee of Co-operative Society	F. W. Roberts, 2, Hammett-street, Taunton.
" 18	Pontlottyn, Wales—Sixty-five Dwelling-houses	Building Club	6, Heol Evan Wynne, Pontlottyn.
" 18	Portadown, Ireland—Masonic Hall, Thomas-street		J. J. Phillips and Son, 61, Royal-avenue, Belfast.
" 18	Wadsley, Yorks—Wash-house, Engine-room, &c.	Committee	—Cotterill, Wadsley Asylum, Sheffield.
" 18	Plymouth—Underground Convenience	Town Council	J. Paton, Borough Engineer.
" 18	West Hartlepool—Premises, Park-road	The Hartlepool Co-operative Society	J. Garry, 47, Church-street, West Hartlepool.
" 20	Warrington—Infirmary Buildings	Infirmary Committee and Guardians	W. Owen, Cairo-street-chambers, Warrington.
" 20	Winwick—County Asylum	Lancashire Asylums Boards	J. Beaman, Delf Farm House, Winwick, near Warrington.
" 20	Llandudno—Electric Lighting and Refuse Destructor Buildings	Urban District Council	E. P. Stephenson, Council Offices, Llandudno.
" 20	Arundel—Labourers' Cottages	Duke of Norfolk	Estate Building Office, London-road, Arundel.
" 20	Leeds—Alterations, &c., to Virginia House, Headingley-lane, and Warehouse, Atkinson-street, Hunslet	C. and E. Roberts	T. Winn, 70, Albion-street, Leeds.
" 20	Ravensthorpe, Yorks—Seventeen Artisans' Dwellings		S. Wood and Son, Cheapside, Heckmondwike.
" 20	Resolven, near Neath, Wales—Mixed Schools	School Board	J. C. Rees, St. Thomas-chambers, Church-place, Neath.
" 20	Selby, Yorks—Bacon Factory	Yorkshire Bacon Curing, Co. Limited	Offices, 1, Abbey-place, Selby.
" 20	London—Moveable Floor to Baths	Lambeth Baths Commissioners	H. J. Smith, Vestry Hall, Kennington-green, S.E.
" 21	Shotley Bridge, Durham—Cottage Homes	Guardians of Gateshead Union	C. A. Sharp, 24, Grainger-street, West Newcastle.
" 21	Whitehaven—Rebuilding 30, Lowther-street		Moffat and Bentley, Architects, Whitehaven.
" 21	London—Erection of Camp Sheathing, Lett's Wharf	Commissioners of Sewers	Guildhall, London, E.C.
" 21	Northwram, near Halifax—Residence		J. T. Walsh, Lancs. and Yorks. Bank-chambers, Halifax.
" 21	Portsmouth—Alterations, &c., to Board School	School Board	A. Bone, Cambridge-junction, Portsmouth.
" 21	Lewisham—Fire Brigade Station, High-street	London County Council	C. J. Stewart, Clerk, Spring Gardens, S.W.
" 22	Pontypridd—School Alterations	School Board	A. O. Evans, Post Office-chambers, Pontypridd.
" 23	London, W.—Additions, &c., to Schools	Acton School Board	E. Monson, Architect, Acton Vale, W.
" 24	Ault Hucknall, Derbyshire—School, &c., at Doe Lea	School Board	Rollinson and Son, 13, Corporation-street, Chesterfield.
" 24	Ivybridge, Devon—Alterations to School, &c.	School Board	—Lake, Highland-street, Ivybridge.
" 24	Yearby, near Kirkcaldy—Reading-room		A. Whipple, 59, High-street, Stockton-on-Tees.
" 25	Westbury-on-Tern—Dymock, Glos.—Police Stations	Gloucester Starling Joint Committee	M. H. Medland, 15, Clarence-street, Gloucester.
" 25	Blackburn—St. Barnabas' Schools	Building Committee	F. J. Parkinson, 9, Richmond-terrace, Blackburn.
" 27	Forres, Scotland—Additions to Hydro, Establishment	Board of Guardians	J. Forrest, 129, High-street, Forres.
" 27	Lewisham—Lunatic Wards at Workhouse Infirmary	Commissioners of Sewers	H. C. Mott, 286, High-street, Lewisham.
" 28	London, E.C.—Alterations to Underground Convenience, Ludgate Circus		Engineer to Commission, Guildhall, E.C.
" 28	Bradford—Houses and Shop at Lidget Green		S. Robinson, 15, Cheapside, Bradford.
" 28	Chadwell Heath—Foundations and Lodge at Asylum	West Ham Corporation	L. Angell, Borough Engineer, Town Hall, Stratford.
" 28	Ormskirk—New Board Room and Offices	Guardians	Willink and Thicknesse, 14, Castle-street, Liverpool.
" 28	West Ham—Asylum Foundations	Council	L. Angell, Borough Engineer, Town Hall.
" 29	Pontardawe, Wales—Infant School	Llangwicke School Board	W. W. Williams, Island-chambers, 63, Wind-street, Swansea.
" 29	Pellon, Halifax—Dwelling-house, Blackwood Estate		C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
" 29	Rotherhithe, S.E.—Shelter at South Wharf	Metropolitan Asylums Board	J. D. Mann, Norfolk-street, Strand, W.C.
" 30	Bootle, Lancs.—Erection of School	School Board	Cox and Marmon, 11, Dale-street, Liverpool.
No date.	Bournemouth—Wesleyan Church at Westbourne		R. Curwen, 112, Hamilton House, Bishopsgate-street Without, London, E.C.
"	Bromborough, Cheshire—Detached Villa		Bell, Williams, Son, & Co., 40, North John-street, Liverpool.
"	Bromsgrove Lickey—Residence		F. J. Yates, 1, Newhall-street, Birmingham.
"	Burnley—Alterations to Closets		R. Barnes, Woodbine Ropery, Burnley.
"	Carlisle—Warehouses		T. T. Scott, Architect, Carlisle.
"	Crewe—Fitting-up, &c., Technical Institute	Technical Instruction Committee	J. A. Jenkins, Secretary, Municipal Offices, Crewe.
"	Gwersyllt, Wrexham—Additions to National Schools		—Plant, Wilderness Works, near Wexham.
"	Kendal—House, Stramontage Bridge	H. Croft	J. Stalker, 57, Highgate, Kendal.
"	King Cross, Halifax—Joiner's Work to Seven Houses		W. C. Darnes, Contractor, Washer-lane, King Cross.
"	Nottingham—Pulling-down		J. Howitt, Bentinck-buildings, Wheeler-gate.
"	Pontypool—Two Dwelling-houses		C. Foxwell, 14, Wainfein-road, Pontypool.
"	Portadown, Ireland—Convent	Sisters of the Presentation of the Sacred Heart.	A. Ferguson, 36, Royal Avenue, Belfast.
"	Portsmouth—Five Cottages		Post Office, Portsmouth.
"	Roths, Scotland—Town Hall		R. B. Pratt, County Bank House, Elgin.
"	Swanage—Burlington Hotel		Farce and Offer, Dorsetshire Bank-chambers, Bournemouth.
"	Walthamstow & Enfield—Terraces & Cottage Residences		E. Beaumont, 78, Fleet-street, E.C.
"	Water Fulford, Yorks.—Farmhouse		D. Cayley, 7, Blake-street, York.
"	Manchester—Two Houses		228, Wallgate, Manchester.
"	Manchester—Six Fire Escapes	Fire Brigade Sub-committee	Chairman of Fire Brigade Sub-committee, Manchester.
"	Leeds—Alterations at Magbag Mills	Magbag Mills Company	J. J. Mosley, 6, Wormald-row, Leeds.
"	Bletchingley—Enlargement, &c., of Workhouse	Godstone Union	F. Elliff, Architect, Caterham.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Ramsey, Huntingdon—New Church...	.....	W. Waddington and Son, 17, St. Ann's-square, Manchester.
"	Skipton—Six Houses, Belgrave-street	.....	J. Hartley, Exchange-buildings, Skipton.
"	Belfast—Alterations to Licensed Premises	M. O'Hanlon	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Belfast—Alterations to Licensed Premises	J. M'Caun	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
ENGINEERING—			
Sept. 17	Worcester—Heating, County Hall	Joint Committee and County Council	County Surveyor's Office, Pierpoint-street, Worcester.
" 20	Whittingham, Lancs.—Electrical Plant at Hospital, &c.	Lancashire Asylums Board	Simpson and Duckworth, Richmond-chambers, Blackburn.
" 20	West Ham, E.—Electric Light Wiring at Public Library	County Borough	Clerk, Town Hall, West Ham, E.
" 20	Bo'ness, Scotland—Cast-iron and Fire-clay Pipe	Police Commissioners	Leslie and Reed, 72A, George-street, Edinburgh.
" 20	Trowbridge—Repair of Clock	.....	Headquarter Office, High-street, Portsmouth.
" 21	Barking, Essex—Electric Lighting	Urban District Council	W. C. C. Hawtayne, 20, Bucklersbury, London, E.C.
" 21	Port Elizabeth, Cape Colony—Electric Lighting	Town Council	Davis and Soper, 54, St. Mary-axe, London, E.C.
" 21	Llandfaen, Wales—Cast-iron Water Mains	Llandilo Urban District Council	D. Jenkins, Engineer and Surveyor, Llandilo.
" 22	Llandudno—Electric Lighting Works	Urban District Council	A. H. Preece, 39, Victoria-street, Westminster.
" 22	Lisbon—Lift Cables	Portugese Railway	28, Rue de Châteaudun, Paris.
" 22	Plymouth—Heating & Ventilating, Municipal Buildings	.....	J. Paton, Borough Engineer.
" 24	Pontefract—Engines and Boilers	Guardians	Greaves and Co., Architects, Corn Market, Pontefract.
" 24	St. Alban's—Heating and Ventilating Printing Works...	Oxford Smith Limited	G. P. Smedley, 110, St. Martin's-lane, Charing Cross, W.C.
" 29	York—Widening Railway	North-Eastern Railway Company	H. Copperthwaite, Engineer's Offices, N.E. Railway, York.
Oct. 7	Hull—Engines and Pumps	Corporation	F. J. Bancroft, Town Hall, Hull.
" 18	Nice—Steel Bridge over the Pailon	.....	Commercial Department of the Foreign Office.
Nov. 5	Hull—Electrical Equipment of Tramways...	Corporation	A. E. White, City Engineer, Town Hall, Hull.
No date.	Harrington—Sinking and Walling a Well	.....	A. Kendall, Harrington.
"	Dunfermline—Electric Light at Muirbeath Colliery	.....	Muirbeath Colliery, Dunfermline.
"	Galway—Steel Joists, Iron Roof, and Balcony to Convent	.....	J. Costello, Contractor, Sea-road, Galway.
"	Leeds—Sinking and Boring Well	Yorkshire Pure Ice Company	W. S. Braithwaite, 6, South-parade, Leeds.
"	Manchester—Sinking Shaft	.....	—Bramall, Pendlebury Colliery, near Manchester.
"	Selby—Sinking Well	Yorkshire Bacon Curing Company	E. Townsend, 1, Abbey-place, Selby.
IRON AND STEEL—			
Sept. 18	Yiewsley, Uxbridge—Lamp Columns, &c.	Parish Council	H. H. Cooper, Clerk, Edith-villa, Yiewsley.
" 20	London—Supply of Stores	London, Tilbury, and Southend Railway	Secretary, Fenchurch-street Station, London.
No date.	Ramsgate—Iron Fence	Gas and Water Committee	W. A. McIntosh Valon, Engineer.
"	Galway—Steel Joists, &c.	.....	J. Costello, Contractor, Sea-road, Galway, Ireland.
PAINTING AND PLUMBING—			
Sept. 20	Bentley—with Arksey, Yorks.—Painting School Bldgs., &c.	School Board	Parkinson, 58, Bentley-road.
" 20	Morley—Re-painting at Dartmouth-park	Corporation	M. H. Sykes, Borough Surveyor, Town Hall, Morley.
" 21	Tottenham—Tower and Tank at Downhills	Urban District Council	E. Crowne, Clerk, Tottenham.
" 23	Dublin—Plumbing, Gasfitting, and Ironmongery	Commissioners of Public Works	Office of Public Works, Dublin.
No date.	Dewsbury—Painting to Sixteen Houses	.....	J. C. Thorne, 1, Ashworth-terrace, Dewsbury.
"	Selby—Painting Thirty Houses	.....	T. C. Fawcett, Ousegate, Maltkin, Selby.
"	Wrexham—Painting Twelve Houses...	.....	Squire, 10, Temple-row, Wrexham.
ROADS—			
Sept. 17	Easingwold, Yorks.—Widening and Fencing	Rural District Council	G. Thomson, District Surveyor, Easingwold.
" 17	Preston—Levelling, Paving, &c.	.....	Borough Engineer, Town Hall, Preston.
" 18	Chorley, Lancs.—Paving Materials and Earthenware Pipes	Corporation	Borough Surveyor, Town Hall, Chorley.
" 18	Heath Town—Paving, &c.	Urban District Council	R. E. W. Berrington, Civil Engineer, Wolverhampton.
" 20	Morley—Street Works	.....	H. H. Sykes, Borough Surveyor, Town Hall, Morley.
" 21	Rowhedge, Essex—Brick Kerb and Gutter	Lexden and Winstree Rural District Council	J. Ennals, Surveyor, Copford, Colchester.
" 21	Tottenham—Paving, &c.	Urban District Council	E. Crowne, Clerk, Tottenham.
" 22	Blaina—Limestone and Gravel	Urban District Council	J. A. Shepard, Clerk, Town Hall, Tredegar.
" 27	Hoylake, Cheshire—Materials (Two Contracts)	Urban District Council	T. Foster, Council's Surveyor, Public Offices, Hoylake.
" 28	Edmonton—Broken Granite	Urban District Council	G. E. Eachus, Engineer, Town Hall, Edmonton.
" 29	Erdington, near Birmingham—Levelling, Paving, &c.	Urban District Council	H. H. Humphries, Surveyor, Public Hall, Erdington.
Oct. 1	Hull—Wood Paving Blocks	Corporation	A. E. White, City Engineer, Town Hall, Hull.
No date.	Harrogate—Road and Sewers	Stonefall Park Estate Company	Whitehead and Smetham, Albert-street, Harrogate.
SANITARY—			
Sept. 17	King's Lynn—Sewer in North Runcton	Rural District Council	R. H. Aldham, Clerk, King's Lynn.
" 18	Hebden Bridge, Yorks.—Pipe Sewers, &c.	Urban District Council	Messrs. Newton, 17, Cooper-street, Manchester.
" 18	Kirkham, Lancs.—Emptying Asphits and Privies	Urban District Council	W. J. Dickson, Clerk, Kirkham.
" 18	Birmingham—Culverts and Sewers in Stoney-lane	Public Works Committee	J. Price, City Surveyor, The Council House, Birmingham.
" 20	Basford, Notts.—Removal of Night Soil	Rural District Council	C. J. Spencer, Clerk, Public Offices, Basford.
" 20	Basford, Notts.—Sewers	Rural District Council	H. Walker, Newcastle-chamber, Nottingham.
" 20	Rotherhithe—Hire of Horses, Carts, &c.: Barging-away Slops	Vestry	Town Hall, Rotherhithe.
" 21	Shoreditch—Brick and Pipe Sewers...	Vestry	J. R. Dixon, Town Hall, Old-street, E.C.
" 21	Wallasey—Pipe Sewers	Urban District Council	W. H. Travers, Public Offices, Egremont.
" 23	London, N.W.—Removal of Slop	St. John's Vestry, Hampstead	Surveyor, Vestry Hall, Hampstead.
" 25	Gloucester—Sewers, &c.	Rural District Council	J. F. Trew, C.E., County-chambers, Gloucester.
" 25	Walsall—Sewer	Corporation	Borough Surveyor, Bridge-street, Walsall.
" 28	London—Alterations to Underground	Commissioners of Sewers	Guildhall, London, E.C.
Oct. 2	Douglas, Isle of Man—Sewers...	Corporation	Stevenson and Bursall, 38, Parliament-street, Westminster.
" 5	London—Line for Outfall Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 5	London—Proto-Sulphate of Iron	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	Burnley—Draining	.....	H. Smith, 135, Leyland-road, Burnley.
"	Ashton-under-Lyne—Drainage Works, District Infirmary	.....	North-Eastern Sanitary Inspection Association, 9, Albert-street, Manchester.
TIMBER—			
Sept. 21	Bury, Lancs.—Timber, Paints, &c., Ironmongery, &c.	Corporation	Borough Engineer, Bank-street, Bury.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 22	London, S.W.—Designs for Public Baths	£100, £50, £25	Battersea Vestry, Lavender Hill, S.W.
" 24	Frinton-on-Sea, Essex—Designs for Board School	.....	Frinton School Board.
" 25	Blaenau Ffestiniog, Merioneth—Plans, &c., for County Police Buildings	£15 15s.	Standing Joint Committee.
" 30	Merthyr Tydfil—Plan for Second Floor to Infants' School	£10	Merthyr Tydfil School Board.
" 30	Skipton—Designs for Cottage Hospital	£15, £5	Cottage Hospital Committee.
Oct. 1	Lower Bebington, Cheshire—Sewerage Scheme	£50, £35, £20	Urban District Council.
" 1	Ludlow—Electric Lighting Scheme	£20	Corporation.
" 1	Morecambe—Plans, Estimates, &c., for Sewerage Scheme	£100	Urban District Council.
" 8	Leeds—Designs for Meat Market and Abattoir	£100, £50, £25	Corporation.
" 13	Dorking—Plans for Infirmary	£15, £5	Guardians of Dorking Union.
" 20	Colne—Technical School, Free Library, and Public Hall	£50, £35	Corporation.
" 30	Uxbridge—Schemes for Sewerage and Sewage Disposal	£45 (if combined) £15 for Eastcote and £25 for Northwood (if separate schemes)	Rural District Council.
Nov. 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
1898.			
Jan. 1	Newcastle-on-Tyne—Infirmary (Local)	(No First.) £150, £100, £50	Secretary, Building Committee, Newcastle.
" 30	Carlton, Victoria, Australia—Plans for Children's Hosptl.	£100, £50, £25	J. Nicholson, Hon. Sec., Pelham-street, Carlton, Australia.
Feb. 28	New York—Model Sun Dial in Plaster	500 dol., 250 dol.	Sec. National Sculp. Soc., 215, West 57th-street, New York.
No date.	Carlisle—Design for Board School	£20, £10	Carlisle School Board.
"	Brighton—Artisans' Dwellings (Local)	£75, £25	F. J. Tillstone, Town Clerk, Brighton.

Practical Carpentry and Joinery.

(Continued from page 99.)

By GEO. ELLIS.

TIMBER for building purposes is divided into hard and soft woods. The hard woods are of various species, and are usually dark or richly coloured, with acrid secretions. The soft woods are pale or light tinted, with resinous secretions; these are all cone-bearing trees, belonging either to the pine or fir species. A brief description of the chief varieties is here given:

YELLOW DEAL (*Pinus sylvestris*), also called Red deal, Baltic fir, Northern pine, and Scotch fir, is the most important and useful soft wood we have. It is tough, elastic, and durable; reddish yellow in colour, with large live knots; annual rings very distinct; sapwood blue; exported from the Baltic and White Sea ports. The best balks for carpentry come from Dantzie and Riga; a coarser quality from Memel; Best deals for joinery come from Petersburg, Archangel, and Onega, in Russia; good quality also from Gefle and Soderhamp, in Sweden. Norway timber is small and inferior.

WHITE DEAL (*Abies excelsa*) is the spruce fir. It is harder and tougher than yellow deal, but is not so durable. Very difficult to work in consequence of its hard dead knots; is yellowish white in colour; annual rings clear; pockets of semi-liquid resin frequently occur on surfaces of boards; sapwood same colour as heartwood; only suitable for rough carpentry and inferior joinery. Best deals come from Christiana, Onega, and Quebec. No balk timber cut; mostly converted into flooring and matchlining.

YELLOW PINE (*Pinus strobus*), called in America the white pine, also Weymouth pine,

OREGON PINE (*Abies Douglassie*) is somewhat similar to pitch pine, but not so heavy; reddish yellow in colour, straight, and durable; free from sap; is of large size. Shipped from Puget Sound.

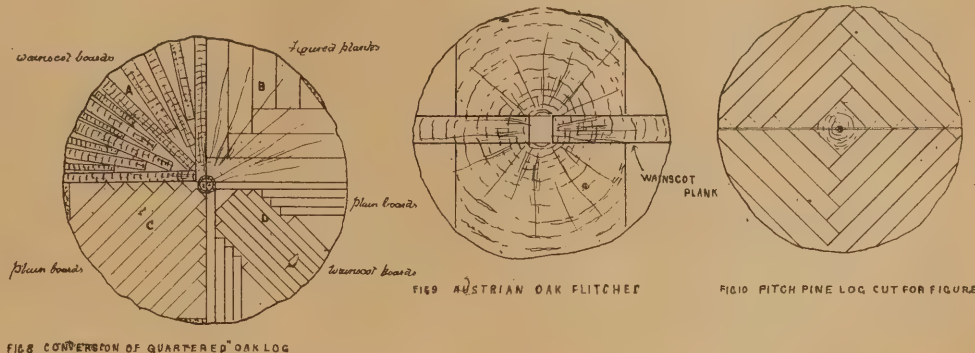
CALIFORNIAN PINE, or Sequoia, also called Redwood, is light, soft, easily worked, very brittle, durable if kept dry, dark-red colour, polishes well. Ports: San Francisco.

OAK (*Quercus*). There are several kinds of this useful and valuable wood used in building, the strongest and most durable being the native grown, but this is very scarce; the next in point of quality is the Russian; but

yellow colour, straight-grained, but porous, has a pungent smell, secretes an aromatic oil that protects iron and preserves it from insect attacks. The best kinds come from Moulmein and Malabar.

WALNUT (*Juglans nigra*). The American black walnut is the kind chiefly used by builders; it is a hard, tough, but open-grained wood, of dark purple brown colour, sapwood yellow, durable if kept dry, polishes well, but is difficult to bring to a smooth surface; grows in the Southern States of America, is shipped from Florida and Carolina.

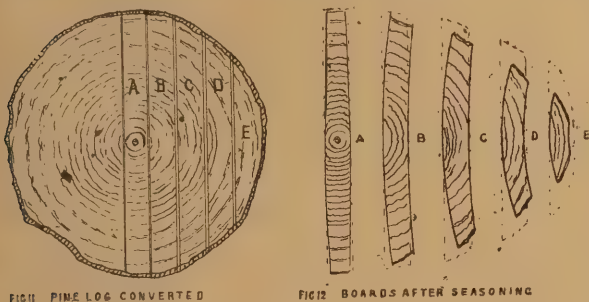
MARKS AND BRANDS.—Shippers brands,



by far the largest supply is derived from the United States. English Oak is a greenish yellow when fresh cut, turning light brown with exposure. The annual rings are fine and close, the medullary rays very distinct. When boards are cut with their surfaces parallel to these rays, they crop out on the face in beautiful white markings called the silver grain. Oak so cut is termed wainscot. Riga Oak is darker in colour than English, softer, and easily worked. Dantzie, very similar, but straighter grained and more elastic. Austrian, lighter coloured, curly grain, bright medullary rays, mostly converted to wainscot. American Oak is reddish brown in colour, straight, soft, and coarse grain; not so durable as English.

MAHOGANY (*Swietenia*) is pre-eminently a joiner's wood; its use for interior fittings, &c., probably exceeding that of all other hard woods. Apart from its expense, it is not suitable for carpentry purposes in consequence of its brittleness and weight. There are two varieties of this handsome wood, one from the West Indian Islands called the Spanish, the other from Central America called Bay wood. The former is a hard, heavy, dark red wood, its pores filled with a white flinty substance that renders it difficult to plane; the latter, a lighter, straighter grained, more porous wood of yellowish red colour, the pores being empty in some kinds, in others filled with black earthy matter. Spanish mahogany is shipped from Cuba, St. Jago, Gibaru, and St. Domingo; Bay wood from Belize, this is called Honduras

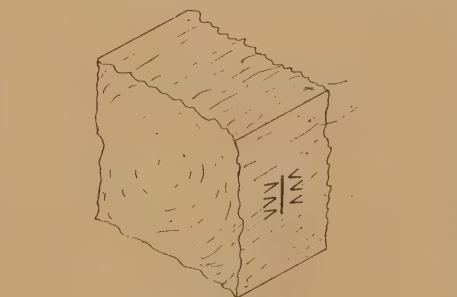
though of service to the timber merchant, are but slightly considered by the purchaser, who rather depends upon his own observation when buying. Brands are continually changed, and are also forged; much inferior timber is exported unbranded and marked according to order when received. The bracker's marks upon Russian timber, however, are executed under Government supervision, and may be



is the principal forest tree of North America, and is in universal use in the States, but in England its use is confined to joinery and pattern making. It is of pale straw colour, turns brown with age, has dark, hair-like marks in the grain, is very light, clear, and straight-grained, does not warp or shrink, not durable, subject to dry rot; it is the most expensive of the pines in the London market; its price is usually double that of best Baltic pine; shipped from New York, St. John's, and Quebec; sapwood brown.

RED PINE (*Pinus rubra*), called also Canadian pine and American red deal, is a harder, closer-grained wood than yellow pine, durable, strong, and elastic, has few large knots, not much sap (which is blue); grows on shores of Gulf of St. Lawrence; exported from Quebec and St. John's.

PITCH PINE (*Pinus Australis*), is a native of Virginia, Florida, and the Gulf States; is a heavy, dense, resinous wood, of deep yellow colour; the annual rings red, and very thick; it is strong in compression, but brittle in tension or cross-strain; subject to cup shake and dry rot if covered from air; suitable for heavy carpentry, piling, and engineering purposes; not suitable for joinery in consequence of great shrinkage. Shipped from Darien, Pensacola, and Savannah.



mahogany; Mexican, from Tonalu, Tabasco, Santa Anna; African, from Axim and Assinie. **TEAK** (*Tectona grandis*).—The Indian oak is found in India, Burmah, Siam, and the East Indies. Is a strong, durable wood of brownish-

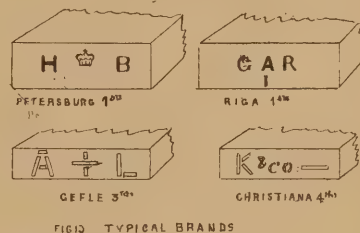


FIG. 14 QUALITY MARKS ON BALTIC BALKS

depended upon to fairly indicate the quality they represent. A few typical deal brands and baulk quality marks are shown in Figs. 13 and 14. Russian timber is "dry marked" or hammer branded; Prussian, scribed with a gouge-shaped tool; Swedish, stencilled in black or red paint; Norwegian in blue; American, hammer branded and chalked with red marks on the flat.

CONVERSION.—When a log or balk is broken down with the saw, it is said to be converted. Fig. 8 represents four methods of converting an oak log by "quartering;" this is cutting it so as to avoid having the heart in the centre of the stuff, as that part is always shaky. It is only done this way by a few exporters, but their goods fetch the best prices. Goods from Trieste are cut as shown in Fig. 9; the two centre planks are in great demand for veneers. To obtain figured pitch pine; the boards are cut tangent to the annual rings (see Fig. 10). Figs. 11 and 12 show the effect of seasoning upon boards according to the part of the tree from which they are cut; trees shrink most in a circumferential direction; and the sapwood, more than the heartwood; boards, therefore, always cast round on the heart side. A

A COMPARATIVE TABLE OF BUILDING WOODS.

Kind.	Principal Uses.	Weight per cubic foot.	Comparison with English oak.			Crushing weight per square inch.	Breaking weight of piece 1' x 1" x 12".	Authority.
			Strength.	Stiffness.	Tough- ness.			
Oak, English	Constructive and Ornamental work	lbs. 51.72	100	100	100	lbs. 7,641	cwts. 4½	T. Laslett.
" Dantzic	Roof timber, beams, and cills	52.19	...	...	...	7,500	3½	"
" American	Joinery	(61.44) (46.69)	...	...	...	(6,964) (5,891)	5 } 4 }	"
" African	Cills, ship carpentry	60	120	...	...	6,720	7¾	Justin.
Mahogany, Cuba	Superior doors, fittings, &c.	50	...	...	...	8,198	3¾	...
" Honduras	Common ditto, handrails, &c.	35	96	93	99	...	5½	...
Teak, Burmah	Fittings, sashes, piles, &c.	41	113	108	90	12,100	5½	Burns.
Walnut	Superior joinery	42	74	49	111	7,227	...	Loudon.
Elm, English	Piles, stable fittings, coffins	34.87	82	78	86	5,784	3½	Newland, &c.
Pine, Riga	General joinery	33.81	60	...	...	4,724	4	Laslett.
" Dantzic	Roof and other framing	36.37	80	114	56	7,105	7¼	Tredgold.
" Weymouth	Panels, mouldings, patterns	32.08	98	95	103	4,164	3½	"
" Canada	Framing and joinery	38.08	62	...	1	7,280	4½	Sargent.
Pitch pine	Open roofs, stairs, floors, piles	39.37	82	90	92	6,462	4¾	"
Spruce, Norway	Flooring, partitions, kitchen joinery	29.37	104	100	104	7,293	3½	"

board cut through the heart, as at A, Fig. 11, will not cast or shrink in width, but will in thickness at the sap edges. B will cast as shown in Fig. 12, and shrink in width, due to the collapse of the sap cells; these faults being more pronounced in the boards containing a greater proportion of sapwood, as shown by C, D, and E. The dotted lines indicate the size of the boards immediately after cutting.

THE DECORATION OF ST. PAUL'S.

THE mosaic decorations at St. Paul's have created quite a warm controversy following the publication of details and designs of Sir William Richmond's scheme. One writer on the subject remarks: "One quality of Wren's work has always struck the architects who have followed him, and that is the beauty of its effect. This is being sacrificed to mere prettiness. The manly distinction of the work is being travestied; and the cruellest part of the business is, that while the present operations seem to receive far too easy a sanction from the kindly Dean and complaisant Chapter, it will be nearly impossible to repair the mischief when it is at last completed."

Another correspondent, Mr. R. B. Ross, writes as follows: "I am neither an archaeologist, an architect, nor a worshipper at St. Paul's, but in the course of a short and uneventful life I have often visited Wren's gloomy masterpiece in the hopes of seeing some of those beauties which artists and architects have so frequently described; and I am told by the learned that my short-sightedness has been shared by Mr. Ruskin and the late Mr. William Morris. When I first saw the reredos I must confess that the unappropriate design, the want of harmony, the idolatrous features, shocked me not at all. I welcomed its presence, as it served to remove the old impression that I was in a secular building, suggesting a neglected railway station or the Capitol at Washington. On seeing the mosaics of Sir William Richmond, I experienced for the first time that pleasure (for I cannot plead guilty to any devotional sentiment at St. Paul's) which a vast and rich interior generally produces no less than the prospect of an open and noble landscape. I saw the church beginning to be

A BLAZE OF MOSAIC AND GILDING.

As to the general effect, most fascinating to me, as to many other members of the public, it is, of course, a matter of opinion; but I would urge that, at all events, there is now something to look at in St. Paul's. After its meagre shrines have been duly visited there is something for architects to discuss, something for archaeologists to find fault with, something for symbolists to symbolise about. Churches, however, were not built only for architects or archaeologists, or for those who, coming to

worship, as your correspondent, remain to argue with and about the decoration. There are the public and Mr. Hooley to be considered, and I would like to record on behalf of these last, though quite unauthorised to do so, our gratitude to the Dean and Chapter and to Sir William Richmond and his clever craftsmen. As a docile publican, I now ask if "subject" is really of much importance in

A LARGE DECORATIVE SCHEME

to which the medium of mosaic lends itself? How many of those who see and appreciate the mosaics at St. Marks, at Monreale, at Ravenna, are troubled by the theme? Devout Protestants may cavil at the introduction of the Blessed Virgin, a patriarch here and there, or a doubtful saint; but such are not likely to delight in mosaics at all. Provided the theme is from Holy Writ or the Legend of the Church, the subject seems to me outside technical art criticism. And, unless symbolists use opera-glasses, they will not be offended by any errors in their kabbala. I would also ask if any period in ecclesiastical Art, from the first down to the eighteenth century, was scrupulous about the mint, anise, and cummin of archaeology. Our ancestors seem to have had little respect for the Art or the Architecture of their predecessors. They rebuilt, remosaicked, and refrescoed with the same heartless disregard of these things displayed by Sir William Richmond. The perpetrators of Perpendicular had small respect for "Early English," so beloved by the moderns, and the seventeenth-century mosaics in St. Mark's seem innocent of Mr. Ruskin's favourite north porch; while the harmony of the Perpendicular roof at Norwich over the Norman nave is, I suppose, a brilliant accident. They seemed to put up what pleased themselves; else what shall we say to Oxford and Cambridge with their harlequin structures, or to Wren's towers at Westminster? They would not deceive a minor canon.

"A Worshipper of St. Paul's," replying to Mr. Ross's comments, says: "His approval of that lamentable work, which is creating consternation in art circles, shows only how amiably and easily he is satisfied on the subject. As a critic on decorative Art, he severely answers himself by hailing the achievement in question as 'a blaze of mosaic gilding,' which is precisely the effect which is not that of fine mosaic work of any style or period, but which is not unknown to French theatres and cafés. Further, he affords us the measure of his judgment in Art matters by referring to the building as 'Wren's gloomy masterpiece,' which, he says, reminds him of 'a secular building suggesting a neglected railway station.' In support of such view, he is content to quote those of Mr. Ruskin and the late Mr. William Morris, who, as sworn medievalists, are, with Mr. Ross, for such reason, necessarily out of court as regards aught concerning St. Paul's."

THE CLIFF CASTLES OF WALES.

THE CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.

THE Pembrokeshire section of the Archaeological Survey of Wales, now being carried on under the auspices of the Cambrian Archaeological Association, has been the means of opening the eyes both of specialists and of the inhabitants of the ancient principality of Dyfed to the extraordinary richness of the county in ancient remains of every kind, a large proportion of which are not marked on the Ordnance maps. The visitor coming to this part of Wales from the well-wooded districts of England, and looking at the landscape for the first time, cannot fail to be struck, and perhaps repelled, by the almost entire absence of trees, which, except in the secluded valleys, are quite unable to survive the force of the prevailing winds. Now, it must not be forgotten that what to us who are accustomed to the high farming and sylvan beauties of England appears a more or less barren wilderness would be in the eyes of the first Neolithic settlers a land flowing with milk and honey. Here there would be no necessity to clear spaces in the primeval forest with a stone axe or by the aid of fire, so that half the battle with Nature was already over. The great extent of coast line must also have been a great attraction, as the cliff castles which are to be seen on

ALMOST EVERY SUITABLE HEADLAND

show that even in the earliest times the prehistoric population supported themselves very largely by the fishing industry. These cliff-castles were at one time attributed to the Danes, but the most reasonable view is that propounded by Mr. Edward Laws in a popular lecture on the subject delivered during the Haverfordwest meeting, namely, that they were the permanent settlements of a stone-using race who lived on the harvest of shell-fish, such as oysters, limpets, mussels, razor-fish, periwinkles, &c., to be gathered on the shore. On the landward side the cliff-castles are protected by ramparts and ditches, and the beach below was reached by a dangerous path down the face of the rock. The cliff-castles were, in fact, the fishing villages of the period, but besides these there are in Pembrokeshire a much more important class of stronghold—great stone forts, with immense ramparts of rubble, enclosing a large area occupied by numbers of hut circles, or "cyttiau Gwyddelod" (Irishmen's houses), as they are popularly called in Wales. Settlements of such magnitude and defended by such heavy military works deserve to be dignified with the title of towns rather than villages.

THE BEST EXAMPLES

in Pembrokeshire are on Moel Trigarn, Carn Vawr, near Strumble Head, and St. David's

Head. The prehistoric towns at Carn Gôch, in Carmarthenshire, Treceiri, in Carnarvonshire, and Penmaenmawr all belong to the same type. Unfortunately none of these sites have been scientifically explored, so that there is some doubt as to the nationality and stage of culture of the people by whom they were erected. Judging, however, from their close resemblance to the settlement on Carn Bre, in Cornwall, recently explored by Mr. Thurstan Peter, of Redruth, it seems probable that the stone forts of Pembrokehire belong to the end of the Neolithic period. The Archaeological Survey of Wales has also borne fruit in the discovery of three or four inscribed stones in Pembrokehire and the borders, the most important of which are the tombstone of Vortipore, Prince of Demetia, at Llanfaliteg, and the bilingual Tigernaci Dobagni Ogam-inscribed stone at Llangwarren. The great interest of these monuments is that they belong to the darkest period of our national history, between the departure of the Romans in A.D. 450 and the conversion of the Saxons, about A.D. 600. The information gleaned from the inscriptions is little beyond the names of the persons commemorated in Latin and the Celtic equivalents in Ogam. But even this is sufficient to connect particular personages with certain districts, and since the language of the inscriptions is Goidelic, it enables us to mark out the area of Wales in which the Gaelic or Irish racial element predominated over the Brythonic or Welsh in the sixth and seventh centuries. The meeting of the Cambrian Archaeological Association at Haverfordwest will not have been held in vain if the strong protest against the way in which the place-names on the Ordnance map are mis-spelt is productive of some reform in that direction. According to a statement made at the general meeting of the Association, the question of the spelling of the place-names in Wales is henceforth to be referred to the district councils, whose members are perhaps the very last persons qualified to deal with a philological investigation.

FOUNDATION stones of a new school for the Methodist New Connexion denomination were laid at the Knowle Rowley, last week. The erection of this additional school has been rendered necessary by the increase in the population of the district.

DARRARA CHURCH, which is situated about two and a half miles from Clonakilty, was dedicated last week. The new church, which has been erected at a cost of about £3000, replaces the old one, which was found inadequate for the wants of the congregation.

At Messrs. Hilton, Andersen and Co.'s cement works at Malling, near Rochester, a large kiln containing about 200 tons of boiling cement overturned, knocking down other kilns and wrecking a shed. Three men were seriously injured.

MR. JAMES M'LEHOSE, a member of the firm of M'Lehose and Sons, builders, Lanark, died on the 5th inst. from the result of an accident. He was assisting to remove a scaffold at the top of a three-story building, when a trace swung round and pushed him off the plank on which he was sitting. He fell to the ground among small stones and scaffolding.

THE extensive premises of Messrs. J. and W. Greig, wool brokers, of Jameson Place, Leith, have been totally destroyed by fire. The building contained several thousand bales of wool, and the damage is enormous, though covered by insurance. Some dwelling-houses and a workshop adjoining were in imminent danger, but the firemen were able to prevent the fire spreading to them.

It is reported at Rhyl that the London and North Western Railway Company proposes to reconstruct the station at that town in consequence of the great increase in the traffic, which during the season has been enormous. It is stated that considerable extension will be made for the accommodation of the passengers, and also for dealing with goods, an extra platform being added. A widening of the line for a considerable distance will also take place, and a new viaduct will be thrown over the river Clwyd.

CARLTON TOWERS.

VISIT OF THE YORK ARCHITECTURAL SOCIETY.

AT the third meeting of the sixteenth session of this Society, the members travelled from York to Snaith, where on arrival a short visit was paid to the church. This spacious edifice is chiefly 13th and 15th century work, consisting of tower, nave with clerestory, and north and south aisles. In the eastern bay of the latter is a niche with "Sca Sæth" (S Osyth) over it; a projecting turret adjoining contains the rood-loft stair. The chancel has side chapels—on the north the Stapleton chapel, and on the south the Dawnay chapel with two altar tombs. Above hang the surcoat, spur, and gauntlet of Sir Thomas Dawnay, who died in 1642. A life-size statue of Lord Downe, the work of Chantry, is here conspicuous. Within the chancel rails is the matrix of a magnificent brass representing a mitred abbot of Selby. The church was appropriated to that abbey, and had a cell for two monks attached to it. Leaving the church the party proceeded to Carlton Towers, permission to inspect the same having been kindly granted by Lady Beaumont. Entering the

OLDER PORTION OF THE MANSION

by the western door the hall, with its low ceiling and exquisitely-carved dark oak furniture, and private chapel on the left is first seen. Re-crossing the hall and ascending to the corridor, the richly furnished study of the late lord is passed on the way to the dining-room. This fine apartment forms the south-west wing and has an enriched plastered ceiling of floral design, and a chimney-piece beautifully carved with caryatide pilasters. The walls are adorned with paintings, amongst which may be noted an excellent portrait of Lady Beaumont by E. Hughes on the left, and a corresponding painting of the late lord as Colonel of the 20th Hussars, whilst over the chimney-piece hangs a pastle of the two children—the little Baroness Beaumont and her sister. Lady Beaumont's suite of private apartments complete the old wing, and both here and in the library above the dining-room may be seen richly ornamented plaster ceilings suggestive of the work of Robert Adam. Upon a side table in her ladyship's room stands a cast in silver of the late lord's favourite charger. This souvenir was made from the old regimental lace ornamentation. After passing through the great hall and armoury, the State apartments designed by Pugin are entered. Gothic Art was at that time revived, and these extensive additions to the old house are a noble example of that period, but it is remarkable we have seen the rise and wane of Gothic Art for domestic buildings, and that the Art of to-day is based on the simpler and more homely work as seen in the older portion of Carlton Towers and not in that of the magnificent pile

ADDED BY PUGIN.

The floor here is raised and is approached from the grounds by a staircase, curved in plan, and having a balustrade of cinque foils enclosing the *fleur de lis*. A deeply-moulded doorway, with ornaments, foliage, and letter S (signifying the family name, Stapleton), is deeply undercut. The entrance doors (sometimes termed the "Silver doorway") are very striking. An arcade leads to the great hall, from which is entered the lofty suite of State apartments extending along the south front. The Venetian drawing-room, with its dark dado, having panels filled with paintings of characters from Shakespeare, chiefly "The Merchant of Venice," form a striking contrast to the richly decorated walls and ceiling. The cove of the mantelpiece is adorned with paintings of figures representing The Four Seasons with Flora in the centre. The card-room and picture gallery are a continuation of the drawing-room, and when the folding doors are open the whole forms one long gallery. A corridor on the north running the full length divides and gives access to the State bedrooms, billiard-room, staircase, &c. The party, after ascending the tower, were most hospitably entertained by Lady Beaumont.

QUIN ABBEY.

FEW of Irish ruins have so broken and troubled a record as Quin. The abbey has been the scene of innumerable conflicts, and the tales of trial and persecution associated with it are matters of history. Time after time have its monks been driven forth, and their habitation despoiled, and each time have with unflinching courage returned to repair their ruined shrine, and restore its broken worship again. From the days of its founding, or, more probably, re-edifying, by Soida Macnamara, the Chief of Clancullen, in 1402, the Abbey grew and flourished for almost a century and a half, until 1541, when it was formally dissolved by Henry VIII. He, however, granted it two years later to Conor O'Brien, who protected the monks. In 1548 it was given to two other O'Briens, Teige McConnor and Tirlogh, whose ruined castle of Dough (or Dumhach) stands amid the sand-hills at Lahinch. In 1578 Queen Elizabeth confirmed the Earl of Thomond in the "friaries of Ince (Ennis) and Cohenny (Quin)"; "in 1584 the grant was renewed to Tirlogh O'Brien and his heirs, "provided they did not conspire with rebels." About this time the monks were expelled and an English garrison put in the Abbey, but one of the warlike O'Briens, enraged at this insult to his faith, gathered a band, and, setting fire to the Abbey, destroyed the holy house and its defenders together. In 1601 it is recorded that a battle took place at Quin between the rebels under Teige, heir to Sir Tirlogh O'Brien, and Captain Flower. In this battle Teige received a mortal wound, and Walter Bourke, son of the blind abbot, was slain. In 1604 the monks returned and re-edified the place, though they were unable to recover the rest of the property, which remained in lay hands. They were once more expelled, and again returned in 1626 under their rector, Teige McGorman. They remained till 1637, when they were again expelled. In 1691 we find a cavalry camp of the ill-starred Irish army formed under its walls while they waited for their removal to France. When the monks were finally driven forth they took refuge at Drim, not far from the Abbey, where they lived unmolested by the Government. One lonely man still stayed on at Quin, where he wrote a poem on the then Lady O'Brien of Dromoland, who had shown him kindness. Since then the

GRAND OLD RUIN HAS STOOD DUMB AND DESERTED,

the feet of passing tourist or neighbouring peasant alone waking the echoes of the silent place where once the harmonious chants of worshippers rose or the martial tread of warriors rang on the marble pavement. If those mouldering walls could but tell of the scenes they have looked down on, what thrilling tales we should learn, what wild stories of hope, despair, and desperate courage. In the great civil war of 1641, it was at Quin, at the large annual fair held close by the Abbey, that the first news of the rebellion was brought, and at Quin it was that the inhabitants took arms and rose as one man to expel the English intruders, who had become possessed of castles and lands in different parts of the county. The history of the siege of one of these castles, that of Ballylia, is minutely told by Maurice Cuffe, third son of the Provost of Ennis, who died in 1634. Of Cromwell's days many tales still linger among the country folk. In that gloomy-looking tower to the east of the Abbey, with the harsh-sounding name of Danganbrack, they show a room where his soldiers stayed to dine on their way to the sack of the Abbey. It was from Quin, too, during the siege of Limerick, that the unfortunate woman was sent by David Roche with her fatal message to Hugh O'Neill, commander-in-chief of the garrison of Limerick, telling him that troops were coming to his relief. At Thomondgate, the entrance to the town, she had the ill-luck to fall into the hands of the English, who brought her before one of their own generals, pretending he was O'Neill. When the poor woman had delivered her message she was hanged, to prevent her giving further information.

PROPOSED RESTORATION AT HEREFORD.

"IF only some wealthy and liberal churchmen would start the undertaking with a handsome donation, what a splendid memorial it would be of Her Majesty's glorious reign!" In these words, part of an introduction to an illustrated pamphlet which Dean Leigh has just published, entitled "Records of the Ancient Chapter House of Hereford Cathedral," will be perceived that zealous and loving care of the fabric which has already enabled him to succeed in rebuilding the Cathedral Library and providing a modern library for the clergy. And everyone who feels an interest in the Cathedral will sympathise with Dean Leigh in taking up the appeal. The pamphlet, which bears the imprint of H. G. Norman, Cheltenham, is a collection of descriptions of the Chapter House excerpted from ancient MSS. guide books, &c., and includes several views of the ruins, together with a proposed elevation of the restored Chapter House and the ground plan of it, by Sir A. Blomfield, A.R.A., the architect of the Cathedral Library. To quote more of his introductory remarks, the Dean says: "The ruins of this ancient structure, probably erected between the years 1315 and 1349, are to be seen on the south side of the south transept of the Cathedral. All that now remains of this once beautiful chapter room are the foundations (recently unearthed) and three niches with

CURIOSLY CARVED SPANDRELS

of one of the nine arches which, together with the entrance, formed the Decagon. A portion also of the lofty vestibule and entrance remains. This entrance is from the east side of the cloister leading from the south door of the Cathedral to the bishop's palace. It consists of a pointed arch, having clustered shafts on the sides with foliated capitals. In the centre is a slender pillar or mullion dividing the archway into two smaller openings, beautifully cusped with carvings in spandrels representing an angel with censor, a mitred bishop, a nun with cross in hand, and another figure supposed to represent 'Purity.' Above is the tympanum, richly moulded and finished, with pinnacles at the sides and crochets up the gables. The ruin of the Chapter House was in the first instance caused by the cannon of the rebellious troops, and in 1645 the lead of the roof was taken by the Royalists for their barracks at Castle Green. A good deal of the material was also carried away by one of the bishops to assist in repairing the adjoining palace. It is much to be desired that a structure so elegant, and withal so necessary an appendage to a Cathedral, may yet be restored to something of its original beauty. Though upwards of two centuries and a half have passed away since it first began to fall into decay, we do not yet despair of seeing the restoration accomplished, if only some wealthy and liberal churchmen would start the undertaking with a handsome donation. What a splendid memorial it would be of Her Majesty's glorious reign! We have been unable to discover any picture of the original erection, although some few

OLD ENGRAVINGS OF THE RUINS

exist." The Dean writes the following postscript to the pamphlet:—"Since the above records were sent to the Press an interesting contribution has appeared in the Hereford Times, containing a strong appeal to every clergyman in September, 1849, urging the necessity of rebuilding the Chapter House, and also an able article on the same subject, dated September 22nd, 1849. Unfortunately want of space prevents the insertion of these extracts. We can only quote a few words from the article published nearly fifty years ago: 'The Chapter House in 1645 was a perfect gem of architecture; witness the sculptured fragments that remain. During the gallant defence of Sir Barnabus Scudamore in that year, the lead was taken off its roof to repair the breaches of the Castle.' . . . It seems to have been entirely neglected except when building materials were wanted, and then the beautiful ruin was more and more defaced and plundered."

Professional Items.

BLACKPOOL.—The new buildings on the site of the Prince of Wales Theatre at Blackpool, which are to be erected for the Alhambra (Blackpool) Limited, from the designs of Messrs. Wylson and Long, architects, will be started immediately. The site is in the Promenade next to the Tower Buildings, and near the centre of the town. Included in the scheme are a theatre of varieties, circus, restaurant, and ball room. The tender of Messrs. Whitehead, of Blackpool, has been accepted for the erection of the general building work, furnishing, and decorations, at a cost of £76,200, and that of Mr. Samuel Butler, of Leeds, for the constructional ironwork, at a cost of £12,788. Messrs. Shoolbred's tender for the seating is £6500. The architects' estimate for the whole complete was £100,000.

BURY ST. EDMUNDS.—The fine parish church of Woolpit has just been enriched by the addition of a new organ, which has been erected on the north side of the chancel. The exterior is of American bass wood, with walnut keyboard, and the pipes have been placed so as to be overhead. The front pipes, forming three faces, are of polished zinc, and there is a large double-feeding bellows at the top of the organ, which has a concave parallel board. The cost is £275.

DUBLIN.—Probably by the end of October the reconstructed Star Theatre of Varieties will be completely finished. Considering the magnitude of the work involved in the rebuilding of what is now a great structure, the progress made in its erection during the course of a few months has been most satisfactory. The decorations at the entrance are modelled on the artistic style in vogue in the Louis XV. period. The proscenium opening is 33ft. wide by 30ft. high. In the case of an outbreak of fire on the stage the asbestos curtain would completely shut it off from the auditorium. The floors of the house are of iron and concrete, and the partitions enclosing the passages to the theatre and also to the private boxes are of fireproof block. The exits will be of the width insisted on by the Corporation bye-laws not less than 4ft. 6in.—while all the doors are being fitted with "panic" bolts, which, on the slightest pressure from the inside, will release the door and cause it to fly open. As to the accommodation of the new theatre it will consist of some 110 orchestral stalls, and 350 pit stalls on the ground floor. Above this there will be a balcony with about 400 seats, and over this there are two galleries with seating accommodation for some 700 people. The architect is Mr. R. Henry Brunton, London; and the builder, Mr. Dalton, of Ranelagh.

At a recent meeting of the Dublin Corporation, Mr. John Clancy moved a resolution asking the Corporation to grant a site in Upper Sackville Street, close to the Rotunda, for the erection of a monument to the memory of Wolfe Tone. An amendment, proposed by Mr. Alderman Pile, postponing the consideration of the matter, was adopted.

GATESHEAD.—The district church of St. George, in the parish of Christ Church, Gateshead, was consecrated a day or two ago. The building has been constructed from the designs of Mr. Stephen Piper, of Newcastle, is capable of accommodating 624 persons, and is situated at the top of Durham Road. It is a plain and substantial stone structure, admirably arranged. The building has cost, with the tower, £6400. In the tower there is a peal of eight tubular bells, costing £200, and supplied by Messrs. Walker and Coxon, of Newcastle. The reredos has been designed and executed by Mr. Ralph Hedley, of Newcastle. The contractor for the church was Mr. Alexander Pringle, Gateshead. The glazing has been done by the Gateshead Stained Glass Company, and the heating by Messrs. Dinning and Cooke, of Newcastle.

HACKNEY.—The people of Hackney are to obtain a Technical Institute. The Technical Education Board has taken a lease of Cassland House, South Hackney, and will there establish this autumn an evening technical school specially in the interest of the younger workmen in the building trade. Mr. Percy R. Kirk has been appointed head master, and workshops are being erected. The Charity Commission has still under consideration a larger scheme for providing two technical institutes in Hackney.

HUDDERSFIELD.—The Committee appointed to adjudicate upon the plans for a tower to be erected on Castle Hill, Huddersfield, as a memorial of the Queen's sixty years' reign, has considered the designs. There were thirty-two sets of plans sent in, and these were reduced to three, and placed in what the Committee considered the order of merit. On the envelopes containing the keys to the designs being opened it was found that the architects whose designs were thus selected were: Mr. Isaac Jones, Herne Hill, London; Messrs. J. and A. C. Haigh, York Place, Huddersfield; and Mr. Walter R. Watson, 689, Great Western Road, Hill Head, Glasgow. The premium of £20 the Committee awarded to Mr. Jones, who has planned a square structure of mediæval design with a basement providing accommodation for a caretaker. It is estimated to cost £1500.

LLANELLY.—The proposal to erect blast furnaces at Llanelly is now taking practical shape. A large and representative meeting was held at the Stepney Hotel on Monday week, when the report of Messrs. E. W. Hampton and E. B. Moses was read and considered. The report recommended the erection of two blast furnaces, capable of producing 800 to 1000 tons each of hematite pig iron per week, or a total output of 1600 to 2000 tons per week. The cost of manufacture, they estimated, would be low, and, with the plant recommended, a profit of £20,000 could be made. The site upon which it is proposed to erect the blast furnaces is a piece of land in close proximity to the Copper Works Dock. The cost of erection was estimated at £43,560. The proposals in the report were adopted, and a committee appointed to carry out the scheme.

MIDDLESBROUGH.—The foundation-stone of an extensive block of buildings which are being erected for the Middlesbrough Co-operative Society in Linthorpe Road, was laid a week ago. The plans of the buildings are by Mr. W. G. Roberts, of Middlesbrough, and the new premises will have a frontage to Linthorpe Road of 87½ft., to Clifton Street of 110ft., and to Pelham Street of 70ft., the whole block occupying an area of 6753 square feet. On the second floor there will be a public hall 67½ft. by 52ft., and two other large rooms 48ft. by 40ft., and 40ft. by 26ft. respectively. The elevations into Linthorpe Road, Clifton Street, and Pelham Street will be faced throughout with Accrington red-pressed bricks with stone dressings, and there will be granite pilasters between the several shops. The work is being carried out by the following contractors: Excavating, brickwork, masonry, &c., Messrs. W. and H. Pounder; plastering, &c., Mr. J. R. Smiles; carpentering and joiner work, Mr. W. Thompson; slating, Mr. J. Harrison; painting, Mr. J. H. Hill; plumbing, glazing, and gas-fitting, Messrs. Walton; and all the contractors belong to Middlesbrough. The total cost of erecting and fitting out the premises will amount to about £10,000.

NORWICH.—Two stained glass windows have just been placed in Norwich Cathedral as memorials of the late Lieut.-Col. Bignold, and of the late Mr. and Mrs. Hotblack. The one to the memory of the late Lieut.-Col. Bignold is situate in the south-east corner of the south transept, near the entrance to the vestry. The upper portion bears a representation of St. Paul, on either side of which is a smaller figure, bearing a scroll inscribed, "Sanctus Paulus." The apostle stands beneath an

elaborate canopy. St. Paul in the presence of Agrippa forms the subject of the lower portion. The other window is in the south aisle of the nave. The three lights are filled by full-length figures. The Virgin Mary, bearing a lily, is figured in the eastern light, and St. John the Evangelist, with the emblematic cup and serpent in the western light, while our Saviour is represented in the centre. The upper portions of the window are filled in with angels bearing shields emblazoned with the sacred monogram and other ecclesiastical emblems. Beneath the window-sill is a brass tablet, on which are engraved the arms of the deceased. Both windows were designed and executed by Messrs. Clayton and Bell, and were erected under the supervision of Mr. Brown, architect to the Dean and Chapter.

WALLSEND.—The largest floating graving dock ever constructed has just been launched from the yard of Messrs. C. S. Swan and Hunter, Wallsend, built for use at Havana. The length of the dock is 450ft.; the clear width between the broad altars, 82ft.; and the depth over the sill, 27ft. 6in.; the draught of water under these conditions being 42ft. 6in., and the free board 4ft. 2in. The pontoons are five in number. The extreme breadth of the dock is 109ft.

WIGAN.—Foundation stones of the new Primitive Methodist Central Hall and Sunday Schools, to be erected in Station Road, have been laid. The design of the Central Hall is, taking it as a whole, of a plain, but substantial character, the nature of the site only allowing of any work or ornament being put in the front elevation, and this has had careful study, all ornament being treated boldly. The style adapted is Classical. The structure is of brick, with Yorkshire stone dressings, the bricks for the front and side elevation coming from Accrington. On the ground floor are the hall, large lecture and infant rooms, which can be divided into class-rooms, three class-rooms, and minister's vestry. The whole of the vestries, class-rooms, and lecture-room open into the hall, and are divided by clear glazed screens, so the hall has supervision over the whole of the various rooms. Off the gallery floor are two rooms to be used as class or committee-rooms. The architect is Mr. J. B. Thornley, and the builder is Mr. J. Johnson.

WORCESTER.—A new Masonic Hall was opened at Worcester recently on a site in St. Nicholas Street. The elevation of the building, which is of red brick and terra-cotta, is of Classical design. The approach is from Trinity Street, and the hall has on the semi-basement spacious kitchen, store room, and cellars. Approached by a broad staircase the dining room is reached, and on this floor are cloak rooms, and a room set apart for the Provincial Museum. The large room is over the dining room, and on this floor are also tyler's and ante-rooms. The buildings have been erected by Messrs. J. Wood and Son from the plans of Messrs. Henry Rowe and Sons.

LAMBETH.—One of the Royal palaces of Henry VIII., structures not infrequently met with in the older parts of London, situate in Hercules Road, Lambeth, is now in course of renovation, after having been given up for many years to the possession of rats. The building is a picturesque one, and whether ever Royal residence or not of the Eighth Henry's period, has distinct architectural claims of recognition. It has but barely escaped demolition by the South-Western Railway Company, whose bridge-widening operations are being rapidly pushed in this direction.

PARIS.—In order that widespread measures may be taken to prevent the recurrence of the recent terrible disaster at the charity bazaar in Paris, it is proposed to hold an International Congress of experts in that city, together with an exhibition of fire-extinguishing apparatus, &c., the scientific discussions being accompanied by practical illustrations. Architects, engineers, and others are asked to forward plans or designs for safeguarding theatres, concert-rooms, and other buildings.

SOCIETY MEETINGS.

Dundee Institute of Architecture, Science, and Art.—The annual excursion takes place on Saturday next. Edinburgh is the rendezvous, and the programme, which includes visits to McEwan Hall, adjoining the University Medical College, to Blackford Observatory, to Craigmillar Castle, and to Holyrood, augurs a pleasant and profitable outing.

Sussex Archaeological Society.—A meeting of the Sussex Archaeological Society was held at Rotherfield recently. After giving the visitors an opportunity of examining the old church, the Rev. Canon Goodwyn delivered a most interesting lecture upon its history. He said that its history went back to about 797, when a chieftain named Bertraldus gave lands for the foundation of a church at Rotherfield to the Monks of St. Denis, in commemoration of his recovery from an illness. No trace of the church could now be found, and the existence of the monastery was open to conjecture. In the further course of his lecture the speaker drew attention to the different styles of Architecture in the church, and to other interesting features.

Cumberland and Westmorland Antiquarian and Archaeological Society.—The second meeting of the Cumberland and Westmorland Antiquarian and Archaeological Society for this year will be held on Thursday and Friday, the 23rd and 24th inst., at Penrith and district. On the first day the party will drive to Edenhall, Langwathby, the Stone Circle at Long Meg, Parks, Kirkoswald, returning by Lazonby and Great Salkeld to Penrith. On the second day the carriages will proceed by Melmerby, Gablesby, Renwick, Croglin, to Armathwaite, returning by the Roman Station (Voreda), at Plumpton, to Penrith, in time for trains north, south, and west.

Leeds Master Builders' Association.—At the annual meeting of the Leeds Master Builders' Association, last week, the following officers were appointed for the ensuing year: President, Mr. W. Nicholson; vice-president, Mr. J. Walker; and secretary, Mr. E. Schofield. It was stated that the association is in a flourishing condition, notwithstanding the recent strike of bricklayers and labourers, the membership having largely increased since last year. Amongst other important business, it was unanimously decided that the association should join the Yorkshire Federation of Builders, the next meeting of which will be held in Leeds on the 16th. The trade of the city was reviewed during the meeting, and it was stated that things were quieter than they had been for some time.

The foundation-stone of a new Roman Catholic Church at Redhill was laid last week.

It is proposed to enlarge St. Paul's Church, Newbarns, Barrow-in-Furness, at a cost of £2500.

The Salford Borough Council has resolved to ask the Local Government Board for power to borrow £10,000 for the purposes of an addition to the electric supply works of the borough.

Over £600 has already been subscribed to the fund founded to defray the cost of reconstructing the organ in St. Asaph Cathedral, which is to be carried out at a charge of nearly £1300.

A factory is about to be built at Brook Green, Hammersmith, for the Incandescent Electric Lamp Company, at a cost of about £7000. Mr. J. W. Stevens, 21, New Bridge Street, is the architect. Messrs. Gordon, Lowther, and Gunton, of Finsbury House, Blomfield Street, are the architects for a new dairy and stables to be erected at Wood Green.

The Waterworks Committee of the Halifax Town Council has for some two months past had under consideration the project of constructing a reservoir at Walshaw Dean, on the moorland edge, near Widdop, some thirteen miles from Halifax. A meeting of the Town Council in committee has been convened to take up the question. The outlay is estimated at about £200,000.

Trade and Craft.

TRAMWAY ENTERPRISE.

An illustrated description of several electric tramways in Berlin and the vicinity given in a contemporary, shows how far London and the great provincial towns have been outstripped by Continental cities in conveniences for local travel. London's mechanically-operated tramways are two in number—both of them cable tramways—and their aggregate length is only four and a half miles. Berlin has had for some time at least three distinct electric tramways system: The first in the Lichterfelde district, on the south side of the city; the second running south-eastwards to Treptow; and the third away in the north, between Berlin and Pankow.

A NEW PATENT SLATE.

The Dublin Slating Company has recently introduced an improved patent slating. The slates are cut at opposite corners in such a manner as to give the same "lap" or protection to open joints as in ordinary slating, but a lesser quantity of slates is used. The surface of the slating is weatherproof. The slates being laid diagonally, the rain runs to a point on each slate; hence it cannot be blown back to an open joint, as frequently happens in ordinary slating, especially on flat roofs and in exposed positions. The weight of the slates being considerably less, the timber work may be relatively reduced, and an additional saving thus effected. Although the system has been introduced only a few months it has made headway. Architects and builders have specified and used the system on large buildings, and it is said to be largely specified for pending work.

MESSRS. ADAMS AND CO.

For many years Messrs. Adams and Co. have been intimately associated with the progress of sanitary science, and it is to their creative enterprise that mankind in general owes a debt of gratitude for the many improvements in sanitary apparatus, which have done much to bring about the disintegration of the old insanitary order of things of but a few years ago, and aid an important science in its advancement to the happy position it occupies to-day. The very name "Adams" stands for all that is sound and up to date in modern sanitary ware. The Company's catalogues are always interesting, for each succeeding issue illustrates something new. "There is nothing new under the sun." It is Messrs. Adams and Co.'s mission in life to prove the fallacy of the old adage; and certainly every sanitarian must admit the high ingenuity combined with a wise interpretation of sanitary principles embodied in the Company's patents. Not the least important patent held by Adams and Co. is their automatic flushing syphon. This syphon has certainly won very widespread and general popularity, and in proof thereof, may be mentioned the revelation of the Douglas Commissioners, that of seventy-nine Corporations sixty-four used Adams' syphons, as against thirty-six per cent. of other makers combined. The action and construction of Adams' syphon is fully described and illustrated in the latest catalogue. Numerous diagrams show the syphon adapted to suit very varying conditions. Other diagrams also show an arrangement for effective flat sewer flushing, patent combined filter and flush tank, etc. Other novel features are, that two or more syphons can be supplied to discharge simultaneously, and others provided with rectangular outlets for distributing the liquid used over large areas, such as filter beds, etc. Illustrations of the firm's well-known valves, including the patent "Insular," combining flap-valve and penstock; the penstock valve, the valve of which has led to its superseding—and that effectively—the more costly water valves; the wedge disc valve—a very popular two-year-old—claim the next section of the catalogue. They are all shown in improved designs, and it is sufficient, we

think, to say that the quality of the work and material is "Adams and Co." In the construction of their automatic floating arm, a marked advance on the older and more complicated and expensive types has been made, and by an effective simplicity the manufacturers have moved many steps nearer the difficult goal of perfection. There is a great advantage, too, in Adams' swivel gully, which claims attention. It has a swivel outgo, thereby avoiding the necessity for bends and curves. The removal of the grate and inspection cap, which is formed in one strong piece of cast iron, gives instant access to the drain, absolute protection against sewer gas being ensured by the double trap. The general form of the gully much facilitates fixing and connecting. Of manhole, lamp-hole, electric light, and other covers there is a great variety illustrated, whilst automatic pumping plant, chain pumps, etc., are also well represented. The catalogue also contains much useful memoranda and many instructive notes.

THE SIMPLON TUNNEL.

The cost of the Simplon Tunnel has been calculated at £2,800,000, and it will be distributed as follows: The Swiss Jura-Simplon Company will bear £2,000,000, the Swiss Government £60,000, raised by contributions from the different Cantons. Italy will be responsible for £200,000, of which £40,000 will be borne by the Italian Government, £80,000 by the Province of Milan, £20,000 by the Province of Genoa, and £60,000 by the Municipality of the City of Genoa.

THE PLASTERERS' STRIKE IN LIVERPOOL.

The following communication has been addressed by Mr. J. A. S. Hassal, secretary of the National Association of Master Builders of Great Britain, to the various societies affiliated to the National Association: "The strike of plasterers in Liverpool, which commenced on May 1st last, still continues, and is being prolonged through the men on strike being employed by other contractors throughout the country, and I am instructed to write and ask if you will kindly request the members of your Association to refrain from employing these men during the dispute. The master plasterers are contending against the full strength of the National Association of Operative Plasterers, and it is an open secret that, if they are defeated, the operatives in the other branches of the building trade in Liverpool intend to make similar claims, which include: (1) Limitation in the number of apprentices. (2) The right of their delegates to visit all works to converse with the men. (3) Railway fares in and out to country jobs weekly. (4) That none other than plasterers do concrete flooring, floating for wood blocks and tiles, and lathing. (5) The privilege of working overtime, when insisted upon by the men, to be paid time and a quarter; and several other similar unreasonable demands. If the Trades Union is successful in Liverpool these claims will, no doubt, be made in other towns. The officials have declined arbitration, and intimated that the operatives will not return to work until the whole of the demands are conceded. I am also instructed to ask you to call the attention of the members of your Association to the resolution which was unanimously passed at the recent meeting of the National Master Builders' Association, at Bristol, enforcing the necessity of all employers increasing the number of their apprentices, in order to remove the present inconvenient scarcity of labour."

THE NEWQUAY HEADLAND DISPUTE.

At St. Columb Petty Sessions, on Friday, twenty-two men, all residents of Newquay, were summoned at the instance of the Newquay Headland Hotel Company for wilfully and maliciously damaging its property. The Company has acquired a site on which to erect an hotel, and had recently commenced building operations. On August 31st a large crowd assembled in the centre of the town and, headed by a band, marched to the headland, demolished a wooden shed erected by the

Company, and threw it over the cliffs into the sea. It was said by the solicitor for the prosecution that the land had been inclosed for sixty or eighty years. The solicitor for the defence tendered evidence with the object of showing that the public had been accustomed to the use of the land from time immemorial, but the magistrates declined to admit the evidence on the ground that they had no jurisdiction to try a question of title. The whole of the defendants were committed for trial.

FOREIGN TENDERS.

Her Majesty's Secretary of State for Foreign Affairs has been informed by Her Majesty's Consul-General at Christiania that the Norwegian State Railway Administration invite tenders for the supply of 340,500 railway plates ("Underlagsplader") and 823,000 "dogs." Separate tenders, marked respectively "Underlagsplader" and "Dogs," should be addressed "Styrelsens Expeditionskontor, Statsbanerne, Christiania," where further information may be obtained on application. Tenders will be received up to 7 p.m. on September 29th, 1897.

THE POSSIBILITIES OF EXCAVATION.

When the old Tombs Prison in New York City was demolished the contract for excavating the foundations was leased to a Mr. Joseph W. Cody. It had been supposed that the foundations rested on piles rotted by age, and Mr. Cody was estimating the cost of machinery for digging them up. What was his delight to find, laid horizontally along the foundations, huge hand-hewed logs of white pine, three tiers deep, measuring 30ft. in length and 11'4in. square. The big beams are in perfect condition. It is likely that Mr. Cody's profit, when the timber is sold, will be between £10,000 and £20,000.

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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—Accepted for laying granite causeway at Belvidere-place and Beechgrove-terrace, for the Town Council. Mr. W. Dyack, burgh surveyor, Town House, Aberdeen.

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LONDON.—For the erection of stabling at 38, Charles-street, Hatton Garden, for Thomas Wallis and Co., Ltd. Messrs. Yetts, Sturdy, and Usher, architects, 44, Finsbury-pavement, E.C. Quantities by Messrs. R. L. Curtis and Sons, 119, London Wall, E.C. —
 Hall, Beddall, and Co. £8,554
 Wagstaff and Sons ... 9,065 William Downes ... 8,059
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 LONDON.—For extension to boiler-house, boiler-setting, &c., for the Electrical Power Storage Company, Limited, Millwall, E. Mr. Alfred Roberts, architect, 13, Nelson-street, Greenwich, S.E. —
 F. Thorne ... £646 W. Mills ... £568
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LONDON.—For the erection of warehouse and offices, 14, Charles-street, E.C., for the Durable Printers' Roller Company. Messrs. Yetts, Sturdy, and Usher, architects, 44, Finsbury-pavement, E.C. Quantities by Mr. Alfred Howard, The Outer Temple —
 Lidstone and Sons ... £11,380 Dove Bros. ... £10,600
 Hall, Beddall, and Co. ... 10,880 William Downes ... 10,330
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 LONDON.—For repairs and decorations at "The Empress of India" public-house, South Hackney, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. —
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 W. Harper ... 580 0 0 T. Osborn & Sons* 467 0 0
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LONDON.—Accepted for alterations, additions, fittings, &c., at the "City Arms" public-house, Devons-road, Bromley, E., for Messrs. Holt and Company. Mr. Fred A. Ashton, architect, 177, Romford-road, Stratford, E. —
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LONDON.—Accepted for the erection of a detached house, George-lane, South Woodford, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. —
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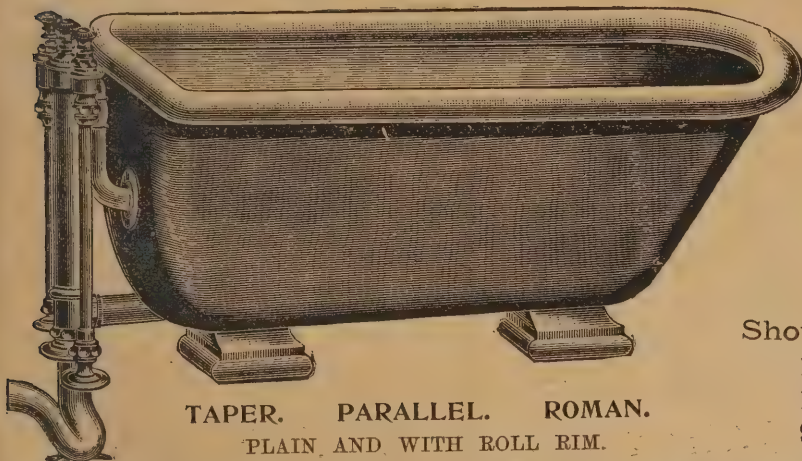
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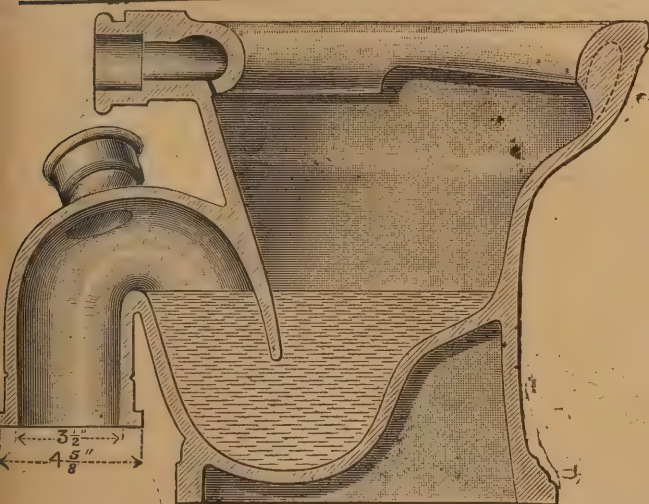
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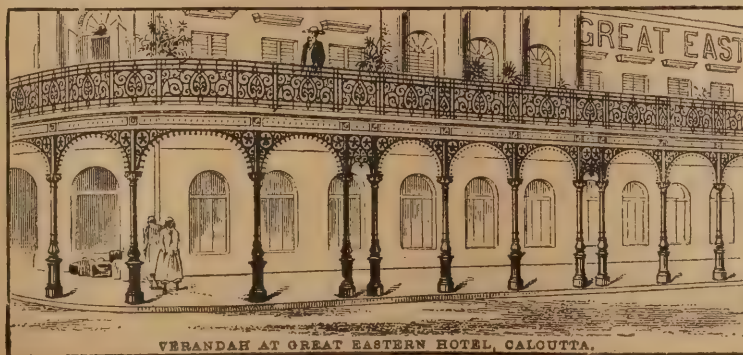
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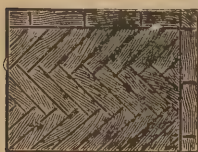
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Clapham Junction, S.W.

MOSSLEY.—For alterations and extensions to Mossley National Schools. Mr. J. H. Burton, architect, 2, Guide-lane, Hooley Hill.—

Excavator, Mason, and Waller.—S. Frost, Mossley	£245 0 0
Carpenter and Joiner.—H. Oeden, Mossley	302 0 0
Slater and Plasterer.—J. Oldfield, Mossley	42 15 0
Plumber and Glazier.—G. Beaumont, Mossley	20 10 0
Painter.—G. Beaumont, Mossley	3 2 0
Sliding Partitions.—John Heywood, Manchester	190 14 6

[All the above tenders are accepted.]

NEWCASTLE-UNDER-LYME.—For oak seating St. Giles' Church. Mr. John Lewis, architect, Newcastle, Staffs.—

T. Gallimore, Newcastle, Staffs.	£950	Harry Hems and Sons, Exeter	£595
T. Thompson, Peterborough	685	Jones and Willis, Birmingham	565
E. Edwards, Newcastle, Staffs.	649		

NEWPORT (Isle of Wight).—For addition to premises, High-street, Newport. Mr. S. E. Tomkins, architect, Castlehold-chambers, Newport, I.W. Quantities by the architect.—

B. S. Gould	£950	G. F. Quinton	£897
G. Y. Groundsell	744	J. Meader	694
George Hayles	710		

PINNER.—For proposed additions to Ruislip Holt, Pinner, for Mr. C. W. Millar. Mr. Frederick W. Foster, architect, 41, Bedford-row.—

Webster and Cannon	£1,478	Longley and Sons	£1,416
Alfred Bush	1,445		

PLUMPTON.—Accepted for alterations to Novington Manor, for Mr. H. P. Edwards. Mr. Frederick W. Foster, architect, 41, Bedford-row, W.C.—

PONDERS END.—Accepted for the erection of eighteen dwelling houses in South-street, Ponders End, N., for Mr. W. Langman. Mr. Fred A. Ashton, architect, 177, Romford-road, Stratford, E.—

C. Simmons	£2,140
RADCLIFFE.	For the construction of a brick sewer, &c., Church-street, Rectory-lane, for the Urban District Council. Quantities by surveyor to District Council:—
Taylor & Fleming	£2,116 19 0
R. E. Jones	1,950 1 6

RADCLIFFE.—For the construction of a stoneware pipe sewer, &c., in Stipes-road, for the Urban District Council. Quantities by surveyor to District Council:—

Etheridge and Clark, Manchester	£399 14 0
R. E. Jones, Patricroft	375 11 6
Silas Sedden, Bolton (accepted)	365 3 6
Taylor and Fleming, Tyldesley	354 6 6

SALTERTON.—Accepted for additions at the Exeter Bank, Salterton, for Messrs. Sanders and Company. Messrs. Kerley and Ellis, architects, Exmouth.—

Hayman, Exmouth	£386 18
SEAFORD (Sussex).	Alterations to 2, Claremont-villas, Claremont-road, for Mr. Wm. Lambe. Mr. Wm. Cooper, architect, Hastings.—
Berry (accepted)	£250

SHEERNESS.—For building a mission hall, for Holy Trinity Church, Sheerness. Mr. T. W. Parrish, architect.—

Pavey and Sons	£1,049	J. R. Bigh, East-E. F. Hughes	574
church (accepted)	£230		

SHEFFIELD.—For proposed engineering works in Stalker Lees-road, for Messrs. Lockwood and Carlisle. Messrs. W. H. Lancashire and Son, architects, Sheffield. Quantities by architects:—

Powell and Son	£3,631 0	S. Walker	£3,220 0
J. Morton	3,283 0	J. Eshelby	3,205 0
Master and Son	3,239 0	Geo. Carr	3,190 5

SILVERHILL.—For additions to St. Matthew's Schools. Mr. Wm. Cooper, architect, Hastings.—

H. Crutenden	£208	H. Ashdown	£219
* Accepted.			

SOUTH WOODFORD.—Accepted for the erection of a detached house, George-lane, South Woodford, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.—

W. Mundy	£736
ST. LEONARDS-ON-SEA.	For alterations at No. 5, Grand Parade, St. Leonard's-on-Sea, for Mrs. Bowerman. Mr. William Cooper, architect, Hastings.—
F. O. Dray	£742 15
Padgham & Hutchin-son	520 0

ST. LEONARDS-ON-SEA.—For sanitary works to 18 and 19, Marina, St. Leonard's-on-Sea, for Messrs. Jull, Godfrey, and Danvers. Mr. William Cooper, architect, Hastings.—

F. O. Dray	£128 15	J. E. Chandler	£74 0
* Accepted.			

ST. LEONARDS-ON-SEA.—For alterations and additions to stabling at No. 29 Upper, Maze Hill, for Mrs. Thompson. Mr. Wm. Cooper, architect, Hastings.—

T. Salter	£105 0	H. Ashdown	£95 10
Eldridge & Crutenden	98 10	* Accepted.	

THETFORD (Norfolk).—For the erection of new cottage hospital. Mr. Herbert J. Green, architect, 31, Castle-meadow, Norwich.—

Adcock and Son, Watton	£775 1 5	J. Boughton and Son, Thetford	£731 14 0
S. Holden, Thetford	774 0 6	* Accepted.	

WOODFORD.—For building a cottage at Woodford, Essex, for John Appleby, Esq. Edward Brown and Son, architects, Commercial-st., Bishopsgate.—

Tappereil and Davis	£176 15	H. Wells and Sons	£140 0
J. V. Kiddle and Sons	175 0	* Accepted.	

WORSBROUGH DALE.—Accepted for erecting two houses, Green-street, for Mr. Benjamin Turner, Barnsley. Messrs. Wade and Turner, architects, 10, Platt-street, Barnsley.—

Masonry and Brickwork.—Geo. Porter and Sons, Worsbrough	£234 6 11
Carpentry and Joinery.—Wm. Hammer-ton's Exors, Worsbrough	68 10 0
Plumbing and Glazing.—J. & F. Hammer-ton, Worsbrough	8 16 0
Plastering.—Chris. Dryden, Barnsley	20 12 0
Slating.—Miss Fleming, Barnsley	21 15 0
Painting.—Stephenson and Son, Barnsley	7 5 0

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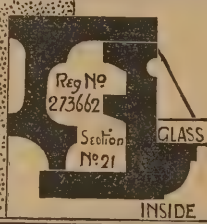
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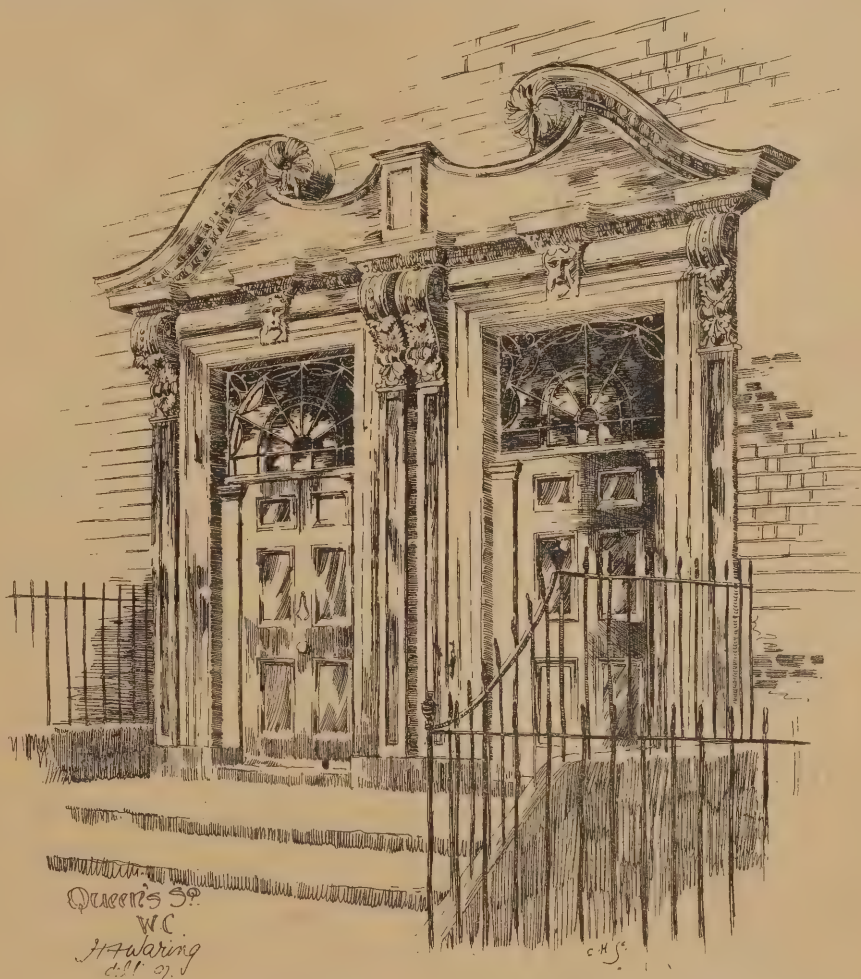
The Art of the Jerry Builder.

THE unqualified ex-
eration which is popu-
larly accorded to the
jerry builder, is perhaps
a little wanting in reason and in fairness.
People are apt to overlook the fact that the
jerry builder is the result of a system. He is
a victim of circumstances, circumstances for
which he is only partly responsible, which
existed before he was born, and which, for
him, afforded the only road to fortune. It is
true, indeed, that he is the most enthusiastic
sort of victim history has any record of; he is,
we have observed, marvellously amenable to
being victimised, he swells in importance and
power, he batters on the process of his
beguilement, and, so far as we have been able
to learn, the only way to rescue him is to
buy him out; nevertheless, he is as truly the
result of a system as is the public executioner,
and as long as people desire shams, and wish
the semblances of luxury and wealth to clothe
their poverty, so long will the jerry builder
continue the victim of our social usages.
Another injustice done to the jerry builder is
the custom of regarding him as being a sort
of reprobate at large, without principles
and devoid of any artistic proclivities.
This is an opinion which relies for its
truth entirely on the popular conventional
interpretation of the meaning of *principles*
and *artistic perceptions*. The fact is, how-
ever, that the jerry builder besides being a
cultured artist in all the affairs connected
with his own line of business, is, beside, a
downright stickler for his principles. People
who have got between a jerry builder and his
principles usually afterwards regret that they
did so. His language alone in such case
awakens disgusts which linger in the system,
and can only be eradicated by years. With
the District and Sanitary Inspectors massed
against him, the jerry builder yet holds
tenaciously to his purpose and his principles;
and the ability, attention, and perseverance
with which he gradually enforces the canons
of his art, and unflinchingly completes the
perpetration of a building without once de-
viating from the maxims and precepts of his
craft, and without for a moment endangering
his reputation as a jerry builder, is an example
of pertinacity, and of consistency of en-
deavour, which it would be hard indeed to
parallel in any other calling. It is rare,
indeed, to find one of them betrayed to a lax
interpretation of the principles of his art,
but when overwhelming distractions and
oppositions seduce him from the ways
of professional probity and rectitude,
he deeply resents the circumstances of
his frailty, and does not readily forget
his shortcoming. We lately heard such
an one lamenting the loss of a favourite
Disconnecting Trap. The sanitary inspector,
it seemed, after testing the drain, had in-
sisted on waiting to see it covered in. "That
drain," said our friend, "were nine foot deep.
I couldn't go all that way down for a seven
shilling trap, could I? and the paving laid a
top too: so there 'tis; and I'd used that very
same trap to all the houses in the road."
Indeed, when we observe this almost fasti-
dious adherence to principle reaching down
as it does to trivial matters of a few shillings
only, we can but think that the jerry builder
has motives of a high and inspiring character
hidden away from the recognition of the un-
initiated. We feel this explanation is a

plausible one: these motives are certainly
out of sight and seem extraordinarily well
hid. The popularity and the wide acceptance
of *Ars est celare artem* as a maxim allows us
to claim for the jerry builder a high status
in the history of the Arts. Not only does he
conceal Art with a completeness, breadth,
and daring that is nowhere else equalled, but
he conceals most other things as well: he
has followed the saying to its very dregs and
made its concealment his special art. Nor
in making this innovation in the interpreta-
tion of the maxim has he taken a position
inconsistent with the general rules that
obtain in the wide field of Art. All Art,
whether letters, drama, music, painting,
sculpture, rely for effect upon stimulating and
directing the imagination in raising visions
and interpreting the facts of existence as
being more perfect than they actually are.
This grand obligation of Art the jerry builder

Door-Knockers.

To be as "smart as the knocker
of Newgate" was, some quarter
of a century since, a cant term
among the lower orders to denote that a person
was smartly dressed or well groomed. The
phrase has now somewhat passed away to the
ewigkeit of forgotten phrases, but a study of
knockers has within it much that is amusing
and instructive, as we venture to think the
following random remarks will demonstrate.
The electric bell has, to a very considerable
extent, deposed the knocker from its proud
eminence on our outer portals and our inner
oak, the pressure of a button doing all that
was formerly accomplished by the heavy iron
knocker, when some late roysterer made night
hideous and sleep impossible for a considerable
distance around by his persistent and noisy
clamourings for admittance. The knockers of
old time are fast disappearing from our midst,
but there are still some left among us, mute
reminders of former state and glory. Thus, in

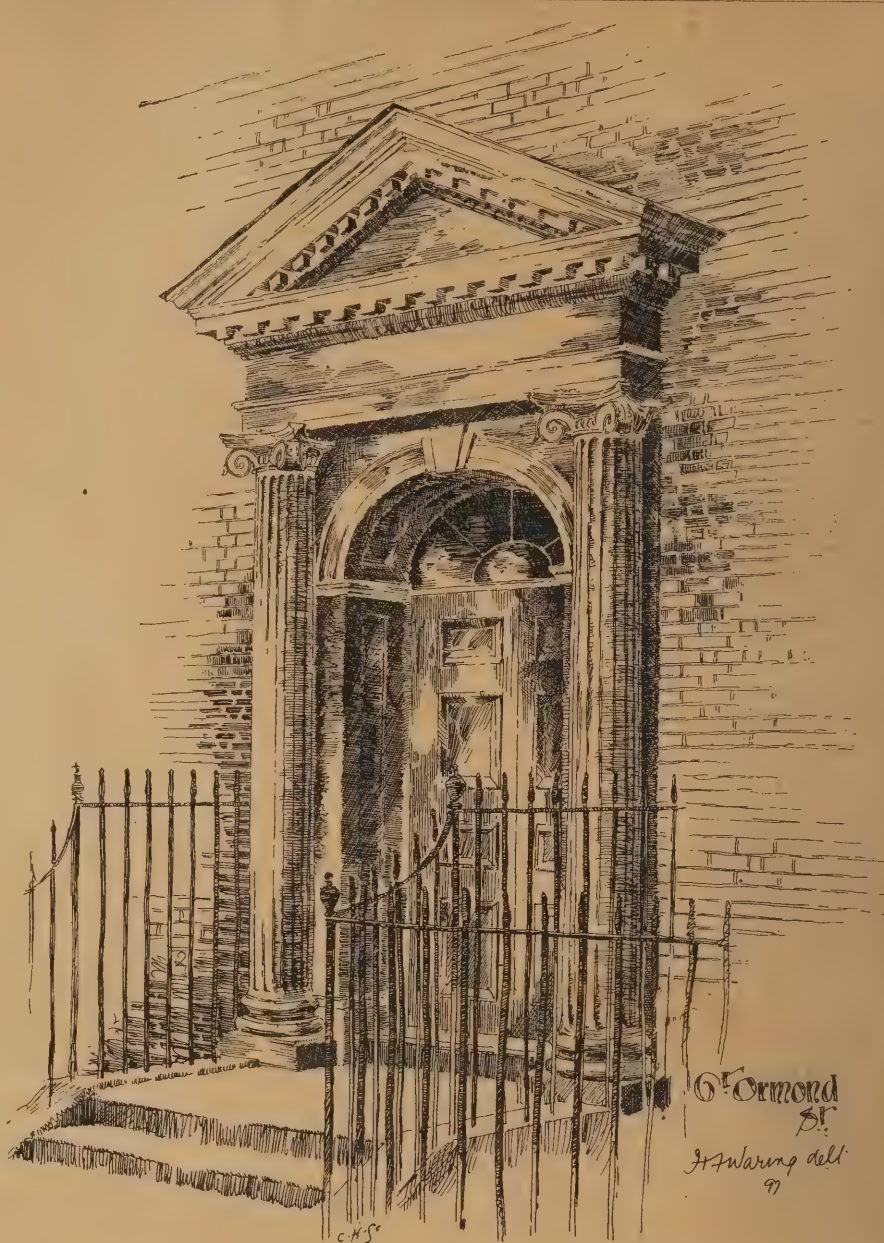


LONDON DOORHEADS (FIG. 7). SKETCHED BY H. F. WARING.

never overlooks. Whether it is in the matter
of the beautiful tiled paving that, after nine
months, tilts up in lumps in the night to
maim the householder in the morning; or
the gate piers that at the early age of six
weeks lean forward as though to whisper
each other the awful secrets of their genesis,
breaking the gate and blocking the entrance,
or the railing that is thereby twisted and
constrained to lift the curb it is leaded into
off the ground. Each and all these things
were, in their days of extreme and guileless
youth, cunningly fashioned by him so as to
stimulate the imagination of the prospective
purchaser, and to raise visions in him and
interpret the facts for him as being more
perfect than they actually were. He may
not be popular, but we should not equivocate
with the fact that the jerry builder is an
artist in a thousand. At the same time, and
the above notwithstanding, we wish he were
but one in ten billion.

old well-to-do neighbourhoods, one occasionally
comes across a fair specimen of the metal-
workers' Art as applied to knockers, though it
must be admitted that the specimens are few
and far between, especially of native production
—a matter in which the Netherlands follows suit,
for in the days of the Renaissance these knockers
were far from being in common use, and when
they were, they were usually formed of two
short bars welded together, and shaped into a
hammer, diverging towards the free end, and
working in a couple of eyes. Coming to
France, however, knockers assumed a most
elaborate form, being almost excessive in their
decoration, though, owing to the fact that
knockers fell into disuse under the Valois
kings, they are exceedingly rare. Some very
fine specimens have, however, been preserved,
and nothing finer perhaps could be produced
of their kind than one having a richly traceried
canopy and niche, sheltering the hammer,
which is formed of a most spirited St. George on
horseback, slaying the dragon, or the companion

example, now at Florence, representing St. Michael. A specimen in the Museum at Troyes has a naked boy holding a chequered shield for a hammer; and another a saint, with enriched backgrounds; and another of the same type, with a dragon for the hammer, is to be found at Dijon; while another similar specimen is at Chateaudun. On the door of Jacques Cœur's house at Bourges is a very good specimen, which has a handsomely carved niche, with shell and pierced decoration, which protects a handsome pillar-knocker. All these specimens are carved, chiefly from the solid, in the grandest style of Mediæval Art, the treatment being in all French specimens, whether elaborate or simple, vertical, compact, and restrained. In the Cluny Museum there is a very elaborate door knocker with the arms of Henri II. and crescent of Diana. It was taken from the Chateau of Auet, and dates from about 1552. At the top it has a lion's mask, with two crescents, imparting much the appearance of horns, and below, a scroll ornament. On the shield below, which is decorated around with panels, tongue and dart, and other ornamental *motivi*, there is the royal crown, and beneath it a small shield bearing three fleur-de-lis. Then succeeds another scroll ornament from which the actual knocker proper depends. This is certainly one of the most elaborately worked knockers extant, and one wonders which of the smiths among Guillaume Hérard, Gilbert Drouys, Adam Bontemps, Michel Suron, Jean Duchesne, or Jacques Martin, executed this particular piece of work. In the earlier years of the seventeenth century knockers were somewhat out of fashion, but, when made, they were either stirrup-shaped, with heads and masks, or of a beautiful pearl drop-like form, with rich foliated mount, depending from a rosette or lion's head, the invention of which is generally ascribed to Cercean. Still designs for knockers were extraordinarily varied, not to say fantastic, down to the days of Louis XIII., when an embossed plate, with a heavy moulded stirrup-shaped hammer, became the regulation form. They were much the same under Louis XIV. and Louis XV., but the plates were merely pierced, and reached a large size and high degree of elaboration. It was not until near the year 1600 that door knockers became prominent in Germany, when they afforded scope for a somewhat fantastic treatment. At the South Kensington Museum there are four very fine examples, especially one, grandly chiselled, reputed to be from Nuremberg. The nails which fastened all this work in place were sometimes handsomely worked. In Italy the door knockers were usually plain and severe, the work of the smith being expended on the *fanali*, or cresset light holders, which, as a rule, were very handsome pieces of work. In Spain the knocker was very generally employed. They are varied in design, and very frequently are based on tracery and architectural forms, with the hammer, ring, or stirrup-shaped striker, lined and pounced by the tool. A particularly fine one, with serpents writhing round the ring and flamboyant plate, has been mentioned by Street as being in the north transept door of Pamplona Cathedral. Later, more fanciful designs, with Moors' heads, lizards, dolphins, or dragons, came into existence. A very fine specimen of Spanish iron knocker work is to be found in the South Kensington Museum, which is carved in the manner of screen work, the knocker being a nude figure of a boy, bearing a panel on which is inscribed "Salve." The specimen is highly ornamented, and has a niche and cupola—altogether a splendid design. Coming to our own country last, we have really very little to show in the way of knockers, which is the more surprising seeing that we have turned out some good iron work at times. Perhaps in this, as in other directions of metal working, we shall show an improvement as time goes on, though, with the advent of the electric bell, it would certainly seem as though the days of the knocker—ugly, plain, fanciful, or elaborate—had gone, never to return. To those, however, who may be interested in the knockers of old, a specimen from Stockbury, in Kent, shows us a circular serrated iron plate, fancifully pierced, from two eyeholes,



LONDON DOORHEADS (FIG. 8). SKETCHED BY H. F. WARING.

fastened to which the knocker, tapered at both ends, notched in the middle, with a half-circular swing at the top, and a heavy piece at the bottom for a hammer, depends. This is a rough specimen, and certainly strikes one as being very useful, if not particularly ornamental. Certainly, as a work of art it is far behind the French and Spanish specimens referred to, and, while the preceding lines do not at all exhaust the interesting subject, they may possibly tend to draw attention to a very interesting division of the artistic ironworking industry.

RESTORATION OF CHICHESTER CATHEDRAL.

IN reference to the appeal recently issued for funds wherewith to carry out the restoration of Chichester Cathedral, a Sussex Churchman remarks in a letter to the *Times*: "I and many others will be deeply grateful to you if you will assist us in calling the attention of the executive committee to the serious responsibility resting on them of deciding upon what should be done to preserve the fabric of our venerable cathedral church. In 1892 the building was found to be suffering so severely from want of repair that Archdeacon Mount (one of the residentiary canons) started what was named the 'Domus Fund,' the object being to collect each year, say, £500, to be spent upon purely practical repairs, not 'ordinary repairs, but only for making good serious structural

damage caused by the ravages of time and weather.' But it is now evident that one portion of the building—viz., the western part of the northern nave-arcade—is in too serious a condition for it to be wise to wait for the Domus Fund to accumulate a sufficiently large sum of money to allow an architect to cope with it. It is again proposed to appeal to the public for help, but the executive committee, instead of simply aiming at putting the building in substantial repair, are of opinion, it seems, that they should go to the public with a complete scheme of restoration—i.e., that they should not appeal for funds to 'repair' the fabric, but also ask for sufficient money to 'restore' it; or, in other words, build up anew all portions which are missing, re-making those purely ornamental features which are decayed, and, where there is no evidence of what was the original design, making new architectural designs after the manner of the old. The grand old Cathedral Church of Chichester is less 'restored' than any other in the country, and I would submit that it is consequently the more interesting and beautiful, and also more inspiring of devout thoughts by making us clearly understand the devotion of our forefathers. From the manifesto now put forth I fear that all the new work which the committee propose to add will seriously detract from the value of the ancient work which remains. All that we can do is to imitate the past; and, in my eyes, all such imitations do and must fall very far short of that genuine inspiration of the work imitated."

LONDON DOORHEADS.

(Continued from page 108.)

By H. F. CARE AND H. F. WARING.

PART II.

IN the former portion of this paper we dealt with examples of the first half of the eighteenth century, when the influence of Wren predominated in the work of the period; the present portion will deal with the latter part of the same century, when the influence at work was that of the Adam Brothers.

The characteristic note of this period is a purer and severer classicism, relieved by a very light and simple decoration in the shape of festoons of flowers and grotesque heads.

But, like all general movements, this change seems to have manifested itself not only in the work of its acknowledged masters, but also in a simpler and correcter use of their classic models by the workers imbued with the spirit of the earlier period.

Thus the general character of the door illustrated in Fig. 7 is more in accordance with the later than the earlier period; the architrave rests directly upon the capitals of the pillars without the interposition of any consols or human heads; though the acanthus leaf still remains as a decoration of the Ionic cap, pillars have replaced pilasters, and are correcter in the details of construction, whilst there is an absence of that elaborate decoration of classic forms which marked the work of the earlier period.

But the masters of this period, whose influence is to be found stamped on the best examples of the latter portion of the eighteenth century, were the Brothers Adam; their particular and especial field of work was the Adelphi, but their influence was almost universal, and may be traced in most of the exterior woodwork of this period, and also in the pattern and decorations of the works in stucco which succeeded it.

The Adelphi, lying between Buckingham Street and the Hotel Cecil, in the Strand, is made up of several streets called after these famous brothers, as the small district itself derives its name from them.

In 1768, on the site of old Durham House, they built a series of arches on which they erected Adelphi Terrace, thus forming the beginning of the embankment of the Thames. In No. 4 of this terrace David Garrick lived from 1772 until his death; and connecting this terrace with the Strand are Adam Street, with John, Robert, James, and William Streets, the names of the four brothers.

In all these streets excellent examples of their work are to be found, and notably Nos. 7, 8, and 19 Adam Street, all of which are in a good state of preservation. The building of the Society of Arts, on the north side of John Street, is also the work of the Adams, and shows the same characteristics in stone as their doorways show in wood.

The example of Adam doorhead we have selected for illustration (Fig. 9) is No. 11, Buckingham Street. It is simple almost to severity; there is a total absence of decoration save the light festoon hanging from a grotesque mask along the frieze, and the small and rather dainty triptych moulding running round the panels of the doorway.

The mask is a prominent feature of the work of this period, and is sometimes human, more often animal; and in Bartlett's Buildings, Holborn, where, with one exception, the doorheads are precisely similar in character throughout, clearly showing the Adam influence, but apparently of a later date, the masks are the only points that vary, and are different in every case, save in one or two instances of adjacent doors, when the two doors are treated as a whole, and the masks accordingly correspond.

The only exception in Bartlett's Buildings, No. 15, is obviously of earlier date, and a much purer example of Adams' influence. There is a delicate festoon of foliage along the frieze, and the pediment is straight with simple

mouldings instead of broken, but the state of preservation in this case is bad.

The remaining examples selected for illustration in this paper are from Queen Square, Great Ormond Street, and Great College Street, and are all specimens showing a mixture of the spirit of both periods, and, except in the case of Fig. 7, the doors of the Italian Hospital in Queen Square are later than the best period of Adams' work.

late, and show the influence of Sheraton and Chippendale, and it is usually in late work only that we find the pilasters within the doorway flanking the door on each side.

This example probably belongs to the end of the last or the beginning of the present century, the work of someone sympathetically imbued with the characteristics of both periods.

Fig. 10 is a doorhead from Great College Street, Westminster; the consols must cer-

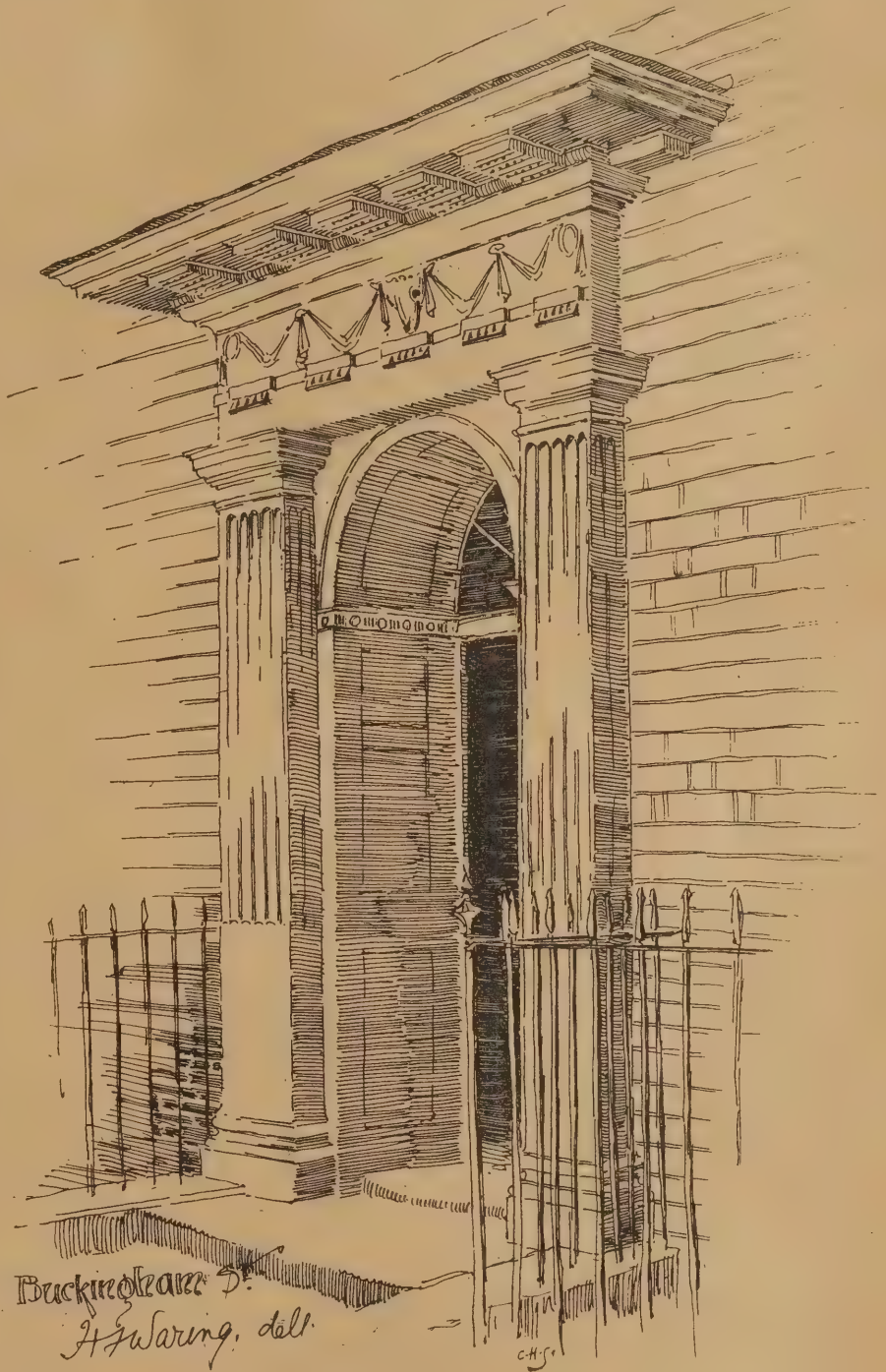


Fig. 9.

From the materials afforded by the doors of the Italian Hospital themselves (Fig. 7) it is extremely difficult to fix their date. Their general appearance as a whole is distinctly early in character; the consols and mouldings, more especially the break in the centre of the moulding, belong to the earlier period of Wren's influence; but it is also noticeable that long panels are substituted for classical pilasters, and the mouldings round the door are much simpler than we should expect in an early example, whilst the masks are certainly more in keeping with the work of the later period.

The lights over the door are undoubtedly

certainly have been copied or taken bodily from some other doorway; for the top is slight, and quite out of keeping with its heavy and elaborate supports, and this door may be safely ascribed to the present century.

The last example (Fig. 11) is another doorway from Great Ormond Street, and belongs to an insurance company, and the emblem in the centre is dated 1824. It is possible that this may be a later addition; but the whole effect is so very similar to its neighbours in the same street, and the latter are in much more in accordance with the spirit which inspired the work of the seventeenth century, that one has little hesitation in assuming the

date 1824 to be correct, and pronouncing the present example a late copy of the similar doorway (Fig. 8) referred to above.

These few examples are some specimens of eighteenth century work still standing in London, and all of them are worth a visit by the student or the Architect. Another excellent example from Carey Street may be seen in the South Kensington Museum, only omitted from this paper as it is no longer an existing London doorhead.

R.A.'S AS DECORATORS AND DESIGNERS.

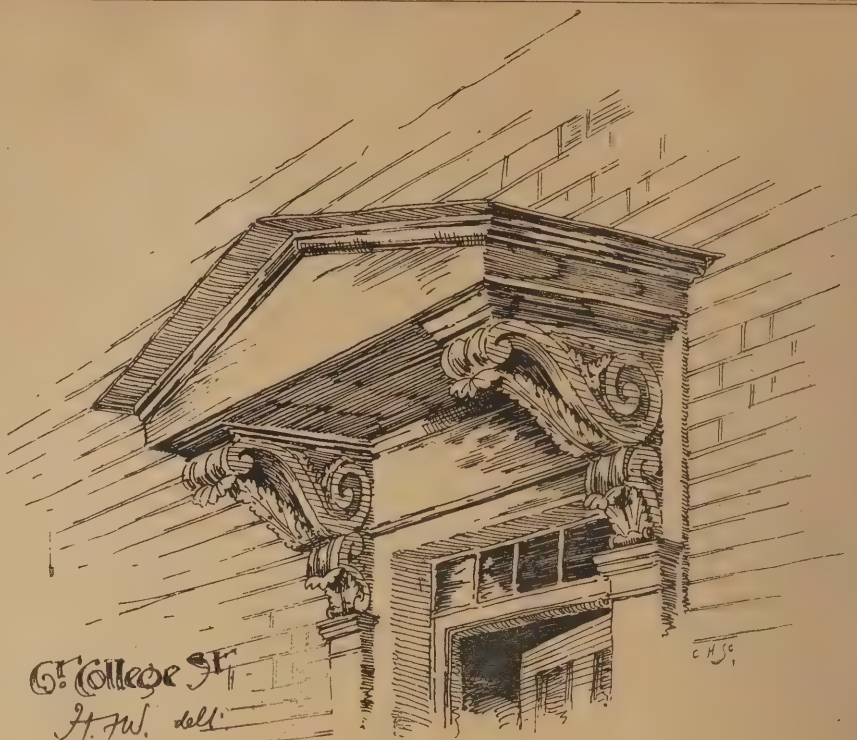
A CORRESPONDENT of the St. James's Gazette is rather severe on R.A.'s as decorators and designers. He says: "Your contributors have perhaps said enough of the Richmond mosaics. Taking them in connection with the sombre grandeur of their surroundings—the somewhat grim unkemptness of the vast expanse of walls and arches—I would be inclined to characterise them as being done in the 'high sweetstuff manner'; or, rather, there is a suggestion of the sticky common enamel. But there are some other R.A.'s who have been allowed to range at large in the City, not, I think, to its betterment. The unfortunate Wren, for whose monument we are invited to 'look around,' would himself, could he take a 'look around,' weep tears of mortification at the fashion in which his great work has been daubed over. The R.A.'s have been somewhat busy of late elsewhere, acting as ædiles up and down the City; but wherever we come on their handiwork we cannot find that there is anything very superior or impressive. The late Lord Leighton had a special "hobby" in the monument to the Duke of Wellington—which he induced the Dean and Chapter to

SET UP UNDER AN ARCH

in the nave, with very disappointing result. Any one can see that it is unsuited to the place, which is an arch—which is not of a covering or sheltering kind, but an opening in the wall of the nave. Here it looks bald and obstructive. The monument itself seems too big for the position. Any architect would have said beforehand that the spot was not fitted to such decoration. Nor will the effect be mended when the equestrian statue is supplied, but made rather worse. Let us next take a flight to Piccadilly Circus, where another R.A. has set up his fountain. This is a strange thing, with its six-sided 'tub,' and the little figure perched on a sort of spike. Such as it is, the fountain is quite unsuited to the place. It requires a large clear area about it. The metal details are all indistinct—perhaps 'blobby'—and the design surely uncertain in its purpose. Were a diagram made of its outlines it would be found to be ill-balanced and inartistic and the apex not proportioned. It is not clear what the function of the tub aforesaid is—is it meant to be kept full, and the water to overflow in a sheet on all the sides? Again, at Knightsbridge, close to Sloane Street, we have Mr. Onslow Ford and his Strathnairn equestrian figure. There is a hint here of the old Colleone treatment. The rider is perched upon

A SORT OF STONE WARDROBE;

but the accommodation on this pedestal is much too straitened. The horse has hardly room to stand. This is the fault in all the London statues—the pedestals are too shrunk and mean; the figures seem as if about to fall off. In none is there that commanding dignity and state which we see in foreign work. The pedestal should be treated as if it were a portion of the ground. The green and gold decoration has a tawdry air. At Hyde Park Corner we come upon the Wellington equestrian statue, by the late Boehm, R.A., and can only think that 'the Dook would have a word or two to say' on his effigy; for it is but a poorish attenuated composition. The four soldiers—a good idea—are squeezed in upon the pedestal, and seem more important than 'the Dook' himself. The horse is lanky, the rider shabby, and if it be looked at from



LONDON DOORHEADS (FIG. 10). SKETCHED BY H. F. WARING.

certain points of view it will be found that the modelling is astray. It is really no more than a sketch. A real bit of equestrian work is that of George IV., in Trafalgar Square—not of the first class, perhaps, but correct in omnibus, and plainly by a trained sculptor. And what shall be said of the

R.A.'S DOINGS AT WESTMINSTER HALL,

save what Johnson once remarked: 'The man would read his poem to me, yet I never did him an injury!' It would almost seem as though the architect had been retained specially to disfigure the place as much as he could. This must be the solution, for Mr. Pearson is a clever artist in his line. The dreadful 'outhouse' or stable, with its squat-tower, is a standing eyesore. But the whole thing speaks for itself, and is a daily horror for the æsthetic omnibus rider. The resuscitated James II. at Whitehall might well be visited by our sculptors to learn what spirit and vivacity and perfect serenity of treatment, founded on knowledge, will do. It is a fine work. Finally, some R.A.'s have been allowed to work their will, 'wicked' or other, on the classic walls of the Athenæum Club—compound yolk of egg and *café au lait* tints in the strangest fashion. All these R.A. efforts are not encouraging, and I think we would do well to fall back on the work of ordinary conventional designers."

MADDERTY Parish Church has been reopened, after having undergone extensive repairs and alterations.

It is proposed to erect a memorial to the late Mr. Tom Tagg in St. Paul's Church, East Molesey.

LADY AUGUSTA MOSTYN has announced her intention of erecting a new church at Llandudno, at an outlay of £2000, on a site given by her son, Lord Mostyn.

THE Fire Brigade Sub-Committee of the Leeds Corporation has approved of a design for a new Police-station and Free Library, to be erected at the end of Reservoir Street, Woodhouse.

THE Primitive Methodist Chapel in Nelson Street, Newcastle, has been disposed of for £7500, to a well-known tradesman. The building will in the course of time be transformed into business premises. The congregation of this place of worship has secured a site in Northumberland Road, and intends to erect thereon a building more suitable for its requirements.

ELECTRICITY AND LIQUID AIR.

DISCUSSING the properties of liquid air, a writer in the New York Tribune says it would not be surprising if before long one of these observed properties were turned to account. While Pictet, Cailletet, Dewar, and Olszewski, he continues, were conducting their fascinating experiments with the condensation of gases, practical men thought: "Very pretty, to be sure; but what does it amount to?" One highly important but now comparatively old industry in which the liberation of a compressed gas (ammonia) has been employed is refrigeration, either in cold storage establishments or ice manufacturing plants. Now another entirely new use has been suggested. The recommendation will be of interest chiefly to electricians, but also to some extent to the general public, which is being served so extensively to-day by electric light and power. Within the last few years there has been an enormous utilisation of waterfalls in America and Europe for power that shall be transmitted to a distance in the form of electricity. The most pretentious plant of this character in the United States is that at Niagara Falls; but in the number of such enterprises, and in the distance to which power is thus sent over a copper wire, the Pacific slope at present eclipses the east.

FROM NIAGARA TO NEW YORK.

As yet no attempt is made to transmit electricity for light and power to points more than thirty or thirty-five miles away from the generating station. But the possibility of reaching out very much further has been seriously considered. Only a few days ago it was announced that an electric transmission line eighty miles long had been projected in Southern California. And electrical engineers have given much attention to the question of how far away from Niagara the power of that cataract can be sent economically enough to compete with steam. Opinions differ, as might naturally be expected; but so eminent an expert as Mr. Tesla has declared emphatically that if a market could be found in the metropolis for a sufficient amount of electricity to warrant the building of a suitable line, it would be entirely feasible to transmit current from the Niagara dynamos to New York. Some suggestions recently made by Elihu Thomson, a leading American authority in electrical matters, regarding the possible use of liquid air, will be more readily understood if the reader recalls the limitations which

hamper long-distance transmission of electricity. The first of these restricting circumstances is the cost of the wire. When electricity goes by a few rods, the metal conductor which guides it on its journey would be comparatively inexpensive; but when the distance is great, and the amount of energy transmitted is considerable, the amount of copper required becomes formidable. From Niagara to Buffalo, over a line that is about twenty-five miles long, there have been strung twelve wires, each nearly an inch in diameter. Each set of three will be employed to carry 5000 horse-power, when the new dynamos are ready to supply the whole 20,000 horse-power that will eventually be required. The losses by leakage and resistance are said to be less than 20 per cent. But over a line fifteen times as long, the diminution would be much greater. Consequently, to deliver 20,000 horse-power in New York, a larger amount must be supplied at Niagara than for the Buffalo service, and conductors of greater size must be employed. It will be seen, then, that a great deal more than fifteen times as much copper would be needed in the one case than in the other, unless some new factor were introduced.

THE QUESTION OF VOLTAGE.

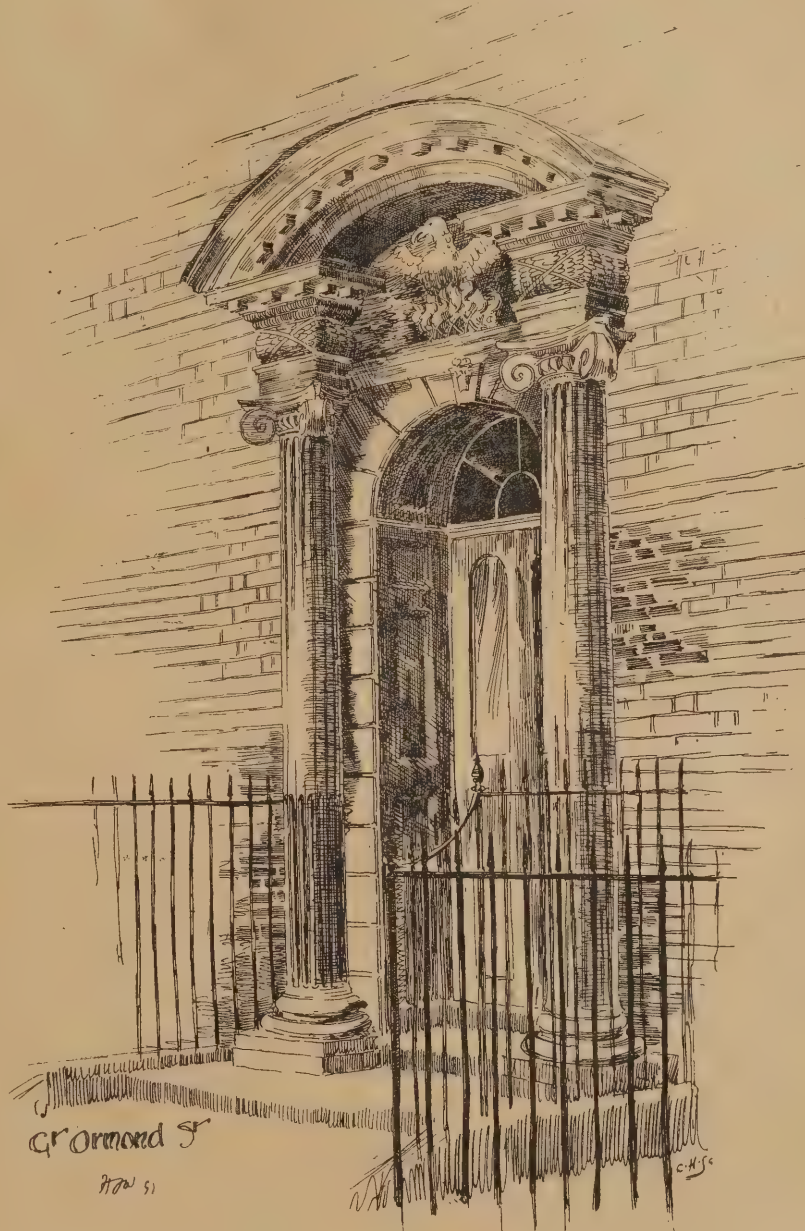
Another limitation which bothers the electrician is the voltage, or pressure, at which it is feasible to transmit electricity. The important discovery was made, a few years ago, that if, by a piece of apparatus called a "transformer," the voltage of a current were raised, the electricity would be sent over a smaller wire. To save copper, therefore, it is the fashion to carry the voltage up as high as possible. On an overhead trolley wire the current is sent at only 500 volts, and for incandescent lamps 110 volts was for many years the standard. But on the three-phase line from Niagara to Buffalo a voltage of 11,000 is employed. This is about the same as is used on most of the Pacific coast transmission lines. Now there is more or less talk about doubling the voltage on the Buffalo wires before long. And if the proposition is carried into effect, the result will be watched with profound interest. The fact is, the higher the voltage, or pressure, the more careful must the constructors and managers of such a line be in regard to insulation. The current shows a most amazing propensity to hunt out routes of escape which it would have ignored before. It behaves precisely as steam or water in a pipe would if the pressure were multiplied. Although the porcelain insulating supports of the Niagara-Buffalo wires have been tested for a voltage of 40,000, yet there is a liability that any one of them may give out under a much lower strain, and let the current leak down the pole. Electricians have speculated on the possibility of effectively transmitting a current whose voltage has been transformed up to 50,000; but at present 12,000 or 13,000 is regarded about the limit of safety. Mr. Thomson's first point is that the electrical conductivity of a copper wire is greatly increased by reducing its temperature. This was inferred from the impairment of conductivity that results from heating. But Dewar demonstrated the fact by making tests with wire immersed in liquid air or liquid oxygen. The conducting power of the wire being enhanced in this manner, of course a smaller wire would suffice for the same service.

THE SURPLUS POWER OF THE FALLS.

The next fact to which attention is called is that "liquid air is one of the most perfect insulators, and that most insulating materials cooled to the temperature of liquid air are greatly improved in insulating qualities." Inasmuch as this temperature is about 200 degrees below zero, Fahr., there is a strong natural tendency toward the absorption of heat from adjacent objects and the consequent evaporation of the liquid. Hence the successful use of air as an electrical insulator depends upon thorough insulation against heat of the receptacle (pipe or trough) containing it. Mr. Thomson emphasises this fact, refers to the cheap methods of Lindo and Hampson for liquefying air wholesale, and then goes on to

say: Niagara power is twenty-four-hour power, and as there are but few industries demanding power for the whole day, it must follow that surplus power is either not used or wasted, and that to keep the plant working night and day at full capacity is desirable, even if some of the power only yields a moderate return. Can it not be used in making liquid air? Cannot the excess at certain times of day be put to use in compressing air to be afterwards liquefied on the large scale? It would seem that large tanks of liquid air can be heat

lines a loss on the line of about 10 to 15 per cent. is suffered. With 18,000 horse-power this would mean from 1000 to 1500 horse-power lost in resistance of line. If the conductors were immersed in a pipe with liquid air the loss might fall to not over one or two per cent., perhaps, leaving available a large power for condensing air to supply evaporation. Just how far 1000 horse-power would go in keeping the conductors supplied with liquid air coatings is a matter requiring data to determine. But if it were not suffi-



LONDON DOORHEADS (FIG. 11). SKETCHED BY H. F. WARING.

insulated very perfectly by layers of air and fibrous material properly placed outside. The evaporated air from the tank could traverse the jacketings in successive order from within outward, so as to help keep down the temperature of the jacketings. A furnace with an internal temperature of 2000 degrees to 3000 degrees above the normal temperature of the air is easily insulated by moderate thicknesses of asbestos or other fibrous coating, so that the outside temperature is but slightly above the normal. The temperature difference between liquid air and normal air is, say, one-eighth of that between the interior of the furnace assumed and the normal, so that it ought to be possible to insulate so that but little heat would enter.

TOUCHING THE PROBLEMATICAL.

In most electric long-distance transmission

cient for the purpose, there is a surplus of power during certain hours to supplement it. But it may be possible that a much higher voltage than is now used (10,000 to 20,000 volts) may be successfully used with conductors cooled and insulated by liquid air. If the potential could be raised to 50,000 volts, either the loss on the conductors for a given power transmitted, would fall off as the inverse square of the voltage, or the conductors could be made smaller in the same proportion, or the distance of transmission increased with the same section of conductors as the square of the potential. These are matters worthy of experimental determination.

The Latin Quarter, the most historical quarter of all Paris, is soon to have a museum of its own.

CITY ARMS OF LONDON.

A KNOWLEDGE of heraldry is very useful sometimes, but most folks can worry along through life very well without it. This very ignorance of a subject, however, often tends to make one take a spurious interest in it. If you keep your eyes open, which very few people do, in your wanderings through London, you will see the arms of the City paraded in all sorts of places. Wherever the City fathers have done anything of which they are more than usually proud, there they affix the City arms as a sort of seal of greatness to the undertaking. That is quite a fit and proper thing to do; but what troubles the open-eyed peripatetic, whose knowledge of heraldry is in an inverse ratio to his curiosity about things which in no sense concern him, is the fact that to his unlearned eyes it is very seldom that the City arms in one place exactly correspond with the City arms in another place; that, in fact, he could make quite a nice little collection of variations of the City arms. For ourselves, we began with the goldsmiths. In our innocence we imagined that if any one was certain to have an

AUTHORITATIVE COPY OF THE CITY ARMS about it would be those who stamp it on gold and silver plate and other things of their own designing. But when we asked if we might be favoured with a sight of the City arms used by the goldsmiths in question when they worked in gold and silver for the City fathers, we were regarded with a most suspicious stare, and informed that the copy used by them was not by any means authoritative; that they made no pretence to be strictly accurate in such matters, and considered themselves justified in giving their imagination just so much rein as the artistic necessities of the particular instance seemed to demand. By dint of a little perseverance we discovered that this was perfectly true, and we were therefore not surprised to discover that no two goldsmiths gave the same picture of the City arms, and that even the same goldsmiths did not always use the same die. Thus foiled in our search for accurate knowledge, we repaired to the Guildhall Library, where every attention and courtesy was shown us. There, after consulting many books, we failed to find any two impressions of the City arms exactly alike. And on envelopes used by the libraries there were

TWO TOTALLY DIFFERENT SEALS.

These in their turn were both very different from a picture of the City arms given in a book called 'London's Armoury.' When we pointed out these differences to the attendants, we were recommended to visit the town clerk's offices, where we would be certain to receive all the information we desired, and where a true and correct representation of the City arms would be easily procurable. Thither accordingly we repaired. But first of all the permission of the town clerk had to be obtained before we could ask any questions. This permission duly granted, our guide and informant showed us an illuminated picture of the City arms, wherein the only difference which we could detect between it and the one in the Guildhall Library was that in one the scroll was more intricate, and in the other the lion's head was wanting. Next we descended into the foundation of the office, where our guide produced for us a book entitled 'Arms of the City of London and Twelve Principal Livery Companies. Published by Austin Oldisworth, at the Golden Ball, in Cannon Street, 1701.' Beneath the picture of the City arms was the following description:—'The arms of the ancient City of London are argent. A cross and sword erected in the first quarter gules, and for the crest on a wreath of their colours, a pair of dragon's wings endorsed silver charged with a cross, as in the armes, supported by two dragons argent, their wings elevated and charged as the crest, standing on an escrolle, with this motto: Domine Dirige Nos.' Watching for the City arms wherever we walked, we noticed them sometimes on a lamp-post with lions instead of dragons; or on a bridge, with the dragons crawling on the ground, instead of standing rampant.

NEW HOSPITAL AT EDINBURGH.

AT the west end of the Castle Rock, Edinburgh, workmen are engaged in taking down several old buildings, on the site of which, as has already been intimated, a well-equipped military hospital is to be erected. The old buildings now in process of demolition, which were used as stores, &c., were of no great antiquity. They were simple and unobtrusive in appearance, and are understood to have been built in the end of the last century, a period responsible for the high unsightly structure further west, which Edinburgh people would not be sorry to see removed also. The new Military Hospital will have architectural features of a Scottish character, which the old buildings did not possess, and as viewed from Princes Street or Castle Terrace, will have a pleasing appearance. The ground plan covers an area of 160ft. by 120ft. The block, which will face Princes Street, will be three stories in height; and towards Castle Terrace there will be an annexe of the same height,

THE WALL OF A PROMENADE,

and the gable of the south block which will only be of two stories. On the east side will be the kitchen and entrance gateway. The east and southern sides of the hospital will be very little seen from the city. To Princes Street a prominent architectural feature of the buildings is a range of dormer windows deeply set in the wall-head, and rising considerably over it. From the apex of the stone gablet to the foot of the window the measurement is 15ft. The wall-head between shows a corbelled cornice with embrasures, and round the dormers is carried an ornamental string course. The windows of the lower stories are square-headed, with jambs of dressed stones. Between the building and its annexe, which faces Castle Terrace, the façade is broken by a large recess, which will form a pleasant feature from below. The whole of the buildings will be of stone. The gable of the south block has bold crows-steps, and

THE WINDOWS SHOW VARIED FEATURES.

On the ground floor of the Princes Street block will be a ward with fourteen beds, with the most improved sanitary arrangements in the annexe. There will be a spacious lobby with entrance from a courtyard, round which the buildings will be grouped. This will lead to a waiting-room, which in turn will communicate with the surgery. The other accommodation at this level is set apart as pack and linen stores. A substantial stone staircase, which is shown in the elevation as a projection, will give access to the floors above. On the first floor there will be a sixteen-bed ward, a day room, and three small wards, with the usual rooms for orderlies. The floor above in its internal arrangements corresponds to a large extent with that just described. There will be a sixteen-bed ward, and one of three other small wards will be set apart for officers. In it there will be two beds. From this block a corridor runs southwards, at the end of which a completely new kitchen establishment for the hospital is to be constructed, with all the latest appliances for sick-room cooking. The kitchen will only be one story in height, and will be lighted from the top as well as the sides. In the south block, on the ground floor, is a ward of five beds for special infectious cases, with separate entrance and

SANITARY ARRANGEMENTS,

so as to isolate it from the rest of the building. There will be rooms for the orderlies, and stores, on the ground level, and in the floor above will be the quarters for the warrant officer. The beds in the wards are placed two between each window, so that there will be abundance of light for the patients. The wards will be heated by hot water pipes and by special stoves, and efficient ventilating arrangements have been made for extracting by means of flues the vitiated air. Between the two blocks on the west side a raised promenade will be constructed overlooking Castle Terrace, on which the patients may take the air. It is approached from the court-

yard by a double flight of steps, and between the pillars carrying it there will be seats placed for the patients. The hospital buildings on the Castle side are enclosed by a wall, and for entrance the old Queen Anne pillars will be used. They are to be taken down, and put up in another position from what they now occupy. The courtyard has been formed by removing the old magazine building, which was 74ft. by 41ft., and part of the space thus secured will be laid out as an ornamental ground. The cost of the hospital will be about £18,000. The plans were designed in the War Office, and have been adapted locally by District-Surveyor T. Ivor Moore, R.E.

HISTORICAL STIRLING.

THE old Stirling Bridge of to-day is not the Stirling Bridge whereat King Edward's chivalry went down before the Scottish spearmen. Antiquarians differ as to the site of the more ancient bridge. Some of them hold that it was at Kildean, a little distance up the river; but there seems considerable probability that it spanned the river at the spot where the present old bridge crosses the stream. This structure was built about 1415 by Robert, Duke of Albany, Earl of Fife and Monteath. Of hewn stone, it has four semicircular arches, varying in size one from another, and presents a massive appearance. At the north end of the bridge used to be a gateway with an iron gate. The gateway remained till 1749, when following the settlement of the Highlands, the volume of trade passing over the bridge increased enormously, and necessitated the widening of the roadway. Till 1749 the bridge was the only bridge across the Forth. In 1745 the south arch was blown up by Major-General Blakeney, to stay the march of Prince Charlie's men upon Stirling. Since 1834, however, the bridge has been closed to vehicular traffic. Now it forms one of the many picturesque sights of a picturesque old town. Another interesting Wallace association at Stirling is the Wallace Monument, built by national subscription. The monument is a tower in the Scottish baronial style, 200ft. high, perched upon the summit of the Abbey Craig. It is an object that arrests the eye of every traveller passing Stirling by day train. The foundation stone was laid in 1861 by the Duke of Atholl, Most Worshipful Grand Master Mason of Scotland. In a niche on the south corner outside rises a colossal statue in bronze of Wallace. The hero is figured upholding his mighty sword. The original of the sword, deported from Dumbarton Castle, is to be seen in a glass case in the interior, as well as very fine busts of the Bruce, George Buchanan, Robert Burns, Adam Smith, Walter Scott, John Knox, James Watt, Thomas Carlyle, and other Scottish worthies.

A STONE pulpit has been offered by Mr. Charles Bennett to St. Matthew's Church, Hayfield, as a Diamond Jubilee gift, and another donor is providing a reading-desk of carved oak.

At Kirkgate it is proposed to fit up an electric light installation for the lighting of the square and adjoining alleys at the Kirkgate Market and the Wholesale Fish Market, at an estimated cost of £2000.

The foundation stones of a Hebrew place of worship were recently laid in Templar Street, Leeds. The premises are to include a synagogue 60ft. long by 48ft. wide, with galleries on three sides, providing accommodation for 800 people, robing-rooms, vestry, a school-room with accommodation for about 250 people, and other necessary accommodation.

At the annual general meeting of the Federated Institute of Mining Engineers, held in Edinburgh last week, a paper was read by Mr. James Barton (Dundalk) on the Irish Channel Tunnel project. He stated that the cost of such an undertaking from the Mull of Galloway to the Antrim coast would be between £8,000,000 and £10,000,000, and that the tunnel would take from ten to twelve years to construct. There were no geological difficulties likely to be encountered.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

September 22nd, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

AN abominable act of vandalism is in contemplation by the Municipal Council of Rouen. Under the pretext of opening up the cathedral and of converting an irregular and entirely beautiful street into a set thoroughfare, this body proposes to pull down a considerable portion of the Rue Saint-Romain, the most picturesque of all quaint corners, dating from the Middle Ages and the Renaissance, that are the glory of the Normandy city. Among the buildings that are threatened with destruction is a certain house familiar to tourists and to thousands who have never set foot in Rouen, for hardly a *salon* passes that does not contain a picture of it, and it has figured often and often on the walls of the Royal Academy. This exceedingly ancient structure is the property of the State, and every effort is being made to induce the authorities to forbid its being razed to the ground.

WE understand that, whatever plans may be adopted for the erection of new Government offices in the neighbourhood of Parliament Street, access to Boar's Head yard from Delahay Street will be preserved. This quaint old thoroughfare leads into King Street, and is full of interest to the antiquarian. The house occupied by Mrs. Cromwell, mother of the Lord Protector, who also resided here, is said to have stood a little to the north of the yard on the western side of the street, whilst among others who have lived in this narrow lane were Sir Thomas Knyvett, who captured Guy Fawkes; Lord Buckhurst, author of the celebrated song addressed to the gay ladies of Charles II.'s Court; Erasmus Dryden, brother of the immortal John; Mrs. Oldfield, the accomplished actress, and the second Lord North, whose house in the middle of the seventeenth century was remarkable as being the first brick residence in the street.

THE demolition has just been completed of a noted landmark in the south of London—the house where the old toll gate for Lambeth Marshes stood, in Westminster Bridge Road. The directors of the London and South-Western Railway Company have recently given orders for a large extension of the permanent way from Vauxhall to Waterloo station to facilitate the ingress and egress of main line trains, and to ensure this a great deal of property has had to be acquired, among which is the old toll house. After the toll gate disappeared, some enthusiasts had an inscription placed on the building to remind passers by of the house's old associations.

WHEN the improvements which have just been commenced by the Drapers' Company at their fine old premises in Throgmorton Street are carried out, this well-known thoroughfare will present quite an altered appearance. The proposal is, we understand, to substitute for the existing front of the building a number of business offices, and at the same time to make a new and handsome entrance to the hall round the corner in Throgmorton Avenue. It

is not intended to interfere in any way with the spacious quadrangle which is surrounded by a fine piazza of arches supported by columns. The present front, of stone and marble, was built by Herbert Williams, who removed the old gallery, and erected a fine new hall together with a marble staircase.

THERE has just passed away, in his seventieth year, Mr. Downwald Birch, an Artist of whom Sir Edwin Landseer and Sir F. Burton, late director of the National Gallery, both said that had he remained in England he might have been in the first rank. For many years, however, he lived in Italy, following Art for its own sake. At the outset his work showed much of the minuteness of detail and colouring of the pre-Raphaelites, but in his later work he was much influenced by the painters of the Barbizon school, having regard mainly to the spirit of the landscape, the truth of relation, and the breadth of handling which characterise the highest ideal of poetic Art.

AN appeal has been issued on behalf of the reparation of St. Mary's Church in Charing Cross Road, whereof portions—being, it seems, the original south and west walls—are condemned as "dangerous" by the London County Council. The church was built in what was then Hog Lane, since re-named Crown Street, for the Greek community by the Archbishop of Samos, as a Romaic inscription over the west door records. Having passed to a Huguenot congregation, by name of "Les Grecques," it is depicted in Hogarth's print of "Noon," but appears therein as reversed. The church was subsequently used by Independents, and next, in 1850, was taken for the Church of England and dedicated to the Virgin. About twenty years ago the old building was enlarged by a chancel and the addition of a north aisle. A Board School, with a laundry and cookery centre, has lately replaced the southern block of the almshouses, twenty-two in all, which once formed an entire quadrangle around the Greek Church.

THE great influx of workmen, chiefly navvies, into Epsom, owing to the erection of the new asylum for the London County Council on the Horton Manor estate, is causing some concern to the local authorities. There being insufficient lodging accommodation in the town, many of the men sought shelter at the work-house, but, not being destitute, they could not be treated as paupers or casuals. Some tents have been erected in contravention of the bye-laws, and a great number of men are reported to be sleeping in the open air, and finding shelter wherever they can. Two meetings have been held by the Epsom Urban Council to consider the question with a view to taking action under the Housing of the Working Classes Act, and the Council has drawn up a scheme, which, if carried out, would involve the borrowing of £7500 for the erection of fifty cottages (estimated to accommodate 500 men) on their own land. It is calculated that the rents derived from these cottages would yield an annual profit of £100, after allowing for the repayments of instalments of borrowed money with interest. The carrying out of this scheme depends upon any action which the London County Council may take to meet the difficulty, and the Epsom Council is in correspondence with that body on the subject. It has received an intimation that the asylums sub-committee has instructed the architect to communicate with the contractors. The need of accommodation will be felt still more after Christmas, when, it is stated, 1600 men will be engaged on the work, chiefly carpenters and bricklayers.

FROM abbey to farm appears to have been the fate of the grand and almost palatial buildings erected by the various religious orders which at one time flourished in this country. Such was the case with Quarr Abbey, in the parish of Binstead, in the Isle of Wight. This Cistercian Abbey, which was of great extent, was founded in 1132 by Baldwin de Redvers, then lord of the island, and afterwards Earl of Devon. Some of the abbey remains are now incorporated in farm build-

ings, and portions of its foundations were recently excavated. Another abbey farmhouse once formed part of the magnificent buildings of Beeleigh Abbey, in Essex, which was founded in 1180 by Robert de Mantell for the Order of the White Canons, and given at the dissolution of the monasteries to Sir John Gate. The walls are now a patchwork of ancient stone, Middle Age brickwork, and mendings of wooden boards. The fine Architecture of the original may easily be traced behind the modern additions. The monks' refectory, erected in the time of John, the chapter-house of Edward III.'s reign, and the monks' dormitory are still almost entire. On the west side of the refectory is a mantelpiece of Tudor stonework, which in reality is the canopy of the tomb of Henry Beuchier, Earl of Essex and his wife, who lie in the Abbey Church.

THE scheme which has just been sanctioned by the Charity Commissioners for the extension of the picturesque old Hospital of St. Cross, near Winchester, presumably represents the result of the compromise arrived at between the authorities themselves and the many people and antiquarian societies who bitterly opposed any visible alteration in the present aspect of the buildings. A new house for the Master is to be erected, but outside the hospital; and apparently the garden, which was originally to be used as the site for this new house, will not now be tampered with. This is certainly a welcome arrangement, for any addition which would have in any way changed the character of St. Cross would have been a subject for lamentation. Such a relic of mediæval picturesqueness is artistically a veritable treasure-house, and should be maintained most jealously. It would be so easy, even with the best intentions, to do it irreparable damage.

THE outbreak of fire at South Kensington has served to draw attention anew to the dangers which encompass the National Art collections under existing conditions. Very little damage was done; but if the outbreak had occurred in the ramshackle temporary structures which until recently housed so many precious exhibits, the result would probably have been very different. Most of these buildings have now disappeared, but there are still enough of them maintained to give ground for serious apprehension on account of the Museum proper. Probably the incident of the fire will hasten the leisurely proceedings of the Treasury in providing the necessary funds for the completion of the plans of the building. The work, as was stated some time since, has been practically decided upon, and it is really now only a question of the precise method by which the scheme shall be financed.

MR. B. T. BATSFORD's forthcoming publications include "Later Renaissance Architecture in England," by John Belcher and M. E. Macartney, the second and concluding parts; "Bungalows and Country Residences," by R. A. Briggs, fourth edition, with additional plates; "A History of Architecture for the Student, Craftsman, and Amateur," by Professor Banister Fletcher and Banister F. Fletcher, third edition, revised; "The Influence of Materials on Architecture," by Banister F. Fletcher; "Modern Opera Houses and Theatres," by E. C. Sachs, third and concluding volume; "Examples of Old Furniture, English and Foreign," drawn by A. E. Chancellor; "Windows, a Book about Stained and Painted Glass," by Lewis F. Day; "Alphabets, Old and New," selected by Lewis F. Day; "Examples of Greek and Pompeian Decorative Work," measured and drawn by J. Cromar Watt; "Estimating, a Method of Pricing Builders' Quantities for Competitive Work," by George Stephenson, third edition, revised; "Repairs, How to Measure and Value Them," by George Stephenson, second edition, revised.

THE Ecclesiastical Commissioners, it is reported, will decline to accept any site for a new church near the sea along the stretch of east coast from Yarmouth northwards. The matter has arisen at Mundesley, where the old

dispute between the possible restoration and a new building is being fought out. The decision of the Commissioners is certainly a wise one. Visitors to this coast must have been struck by the old deserted churches that stand at the sea's edge at intervals, "solitary wardens of the deep," waiting for the storm that will bring them down as the sea encroaches on the crumbling land. Cromer's old church went under the waves long ago. The old tower at Eccles, of which Chaucer makes mention, went down in the great gale two years ago. The most notable of the remaining old sanctuaries is the Sidestrand tower, which stands amongst its graves right on the cliff's edge. A corner of the old churchyard has already gone down, and some morning the people of the district will undoubtedly look for the familiar old landmark and find it gone.

A SINGLE-SPAN bridge was placed bodily across the Northern Railway in Paris, the other day, having been constructed alongside the line. The Company insisted that traffic should not be interfered with, and this was the only way out of the difficulty. The bridge, 44 metres long, and weighing 400 metric tons, was moved at the rate of ten metres an hour. The operation began at seven a.m., and was successfully concluded about eleven. The bridge, which has been named the Pont Stephenson, connects the Rue Stephenson with the Rue de la Chapelle.

THE contractors selected by the Admiralty tender for the construction of the National Harbour at Dover have received an intimation that the plans and specifications of the works are ready. According to these the tenders should be in the hands of the authorities in a few weeks. The work at the eastern and western ends of the harbour will be proceeded with simultaneously so as to expedite its construction. The lengthening of the Admiralty Pier seaward, which will form the western arm, is to be proceeded with at once, as it is necessary for the protection of the enlarged Continental and commercial harbour which is being constructed by the Harbour Board. Before the eastern arm can be commenced a considerable area of the foreshore under the cliffs is to be reclaimed.

A CORRESPONDENT of the Times describes the physical features of Delagoa Bay, which promises to become an important commercial centre for South Central Africa. The town, which extends for about a mile along the water's edge, is built on ground which has the appearance of having been at one time wholly or partially submerged. Nearest to the water is a bank of sand on which the principal streets are built. Next comes, dividing this bank from the higher ground behind, a low-lying belt or strip, now more or less dry and drained, but which has been till quite recently a mere swamp or marsh, forming a complete boundary to the town and causing an abundance of that malarial fever for which Delagoa has such an evil reputation in South Africa. Of late years a good deal has been done, and is now being done, to drain and fill up "the Swamp," with the result that in winter time, at any rate, it is perfectly dry, while in some parts it has been so completely changed that houses have been and are now being built upon it. Behind the Swamp, again, the ground rises considerably to the north-east, until at Reuben's Point, as already mentioned, the north-east corner of the bay, a height of 280ft. above the sea-level, is reached. On the hill or "Berea" thus formed large numbers of houses are springing up. At the western end is the British Consulate, further east and higher up the telegraph-station, the Governor's house, a look-out-station, and barracks. Every available building site is taken up, many houses of good quality are already completed, others, including an hotel, are in course of construction, while towards the edge of the cliff at its highest part a space has been set aside for public gardens. Lawn-tennis courts and gardens are making their appearance, and it is certain that, within a very short time, what was a desolate and weed-grown bank will

become a popular suburb. Were it not for the existence of another swamp some little distance further north again, from which the wind occasionally blows up the germs of malaria, this hill, exposed as it is to the full force of the sea breeze, would be a perfect sanatorium. Even now it is admittedly the healthiest place of residence. An excellent macadamised road runs from the town to the far end of the hill. Few things, indeed, in Lorenzo Marquez are more appreciated by the visitor, fresh from the dust and abominable roads of Johannesburg and Pretoria, than the hard smooth streets and roads which the municipality has with commendable enterprise substituted for the sand, knee-deep, with which, as shown by the few roads still unmade, the traffic of the town had to contend. The water supply is satisfactory. The sanitation, which is being gradually improved, is in the residential part of the town in no way inferior to that of Johannesburg, while in a very short time the use of the electric light will be universal.

THE preparation of the stained glass windows which have been presented to St. Paul's Cathedral by the Duke of Westminster has been somewhat delayed by necessary structural alterations, and also by the absence of the artist, Sir W. B. Richmond, on the Continent. The windows are to be placed in the north and south transepts, and one of them is now complete at the works of the makers, Messrs. Powell, of the Whitefriars Glassworks. The design for the other window is finished, and these two handsome additions to the decorations of St. Paul's will soon be in position. The general features, it is unnecessary to add, are thoroughly in keeping with the richly ornate, though severely criticised, mosaics which are also being arranged by Sir William Richmond.

THERE WAS a large attendance at Tokenhouse Yard on Tuesday week, when Mr. Franklin Homan again submitted to public auction the extraordinary edifice known as Jezreel's Tower, which occupies an elevated position on the hill near Chatham. The order of the Jezreelites was started by a private soldier named White, who assumed the name of James Jerishom Jezreel, and when he had collected sufficient funds he built the tower for the housing of 144,000 of the people who "were not to taste death." The founder of the order, however, passed away before the tower was finished, and his wife, who was known as Queen Esther, also proved a bad advertisement for the new doctrine, for she likewise died. Offered with the tower were seven acres of garden ground, two brick-built cottages, and a timber-built blacksmith's forge, stables, cowhouse, and other outbuildings. The interior above the ground floor is arranged for a circular assembly hall to seat 5000 people. At one end is a restaurant, and there are large dormitories for men and women, numerous bedrooms, and other offices. The auctioneer started the bidding at £3000, and after rises of £100 and £50, withdrew the property at £3950.

ONE often hears in a gallery interesting details about the pictures, all the more striking when you are able to compare what is said with the work criticised or talked about. In the Tate Gallery a day or two ago a visitor was admiring Millais' "Ophelia," and pointing out its excellencies to country cousins. He seemed to know his subject well, he spoke with authority, and he told this story about the little canvas. E. M. Ward and its painter were friends, and disliked each other's technique, and made no secret of their opinions. When the picture was first exhibited, and awoke no small admiration and controversy, Ward came up to Millais and asked him what he called his work. Said Millais, "I call it Ophelia." Said Ward, "I call it Oh Failure." Some years afterwards Ward painted his Charlotte Corday, and Millais in the presence of its painter eagerly studied the much admired picture. Ward waited for the words of approval to which he had become accustomed. All Millais said was "Tell me, where do you get your cadmium?"

AMONG the recent additions to the Egyptian Department of the British Museum are two very well finished busts of the period of the later Ptolomies. Although these works of Art are rather small compared with some of the remains of that period, nevertheless they may be said to represent a marked Greek influence upon the usually heavy Egyptian style. There is also a granite figure of the goddess Serk, represented as holding a shrine upon which at a very early period was inscribed an invocation to that goddess. This inscription, however, has now almost entirely disappeared, only a few of the hieroglyphs being decipherable. Monuments of this description were usually either the property of private persons and used as household gods, or else they were buried with the mummy, and hence became funeral objects. A portion of the statue of a king has also recently been added, and it is much to be regretted that as it bears no inscription the authorities are unable to fix its date.

AN interesting exhibition has been opened at the gallery of Messrs. Graves and Company, 44, Cherry Street, Birmingham. It consists of pictures by Mr. Buxton Knight, and sculpture by Mr. Albert Toft. The examples of statuary are principally in plastic material, but include several bronzes. They are twenty-three in number, and among them are works that have been exhibited at the Royal Academy and New Gallery. Mr. A. W. Wills lends the fine bronze figure of "Lilith" toying with the serpent. Of similar size, but of a wholly different character, is a bronze figure entitled "Evening." It is an admirable illustration of the success with which Mr. Toft has in so many instances embodied subtle sentiment in the lines of his figures. Very delicate, and animated with a clear expression of sentiment, is a tinted statuette entitled "Spring"; while the draped figure with upraised hands, entitled "The Invocation," and a head and neck to which the artist has given the name "A Vision," also show intensity in the portrayal of idea. The original plaster sketch of a large panel, "Age and the Angel of Death," is among the more important items. The works of Mr. Buxton Knight were recently on view in London.

AN extension is in progress in connection with the underground electric railway which runs from Stockwell to the City side of London Bridge. The City and South London Railway is the full description of this line. The route comes quite close to the familiar church of St. Mary Woolnoth. It stands at the junction of King William Street and Lombard Street—that is to say, just where they approach the Mansion House. A station was necessary here, and it is to be built immediately under St. Mary Woolnoth. There was a church on this site as early as 1355, and the present one was built between the years 1716-1719. The architect was Nicholas Hawksmoor, one of Wren's pupils, and St. George's, Bloomsbury, also pertains to him. The point, however, has been this: How to preserve St. Mary Woolnoth intact, as stable as it has been, and at the same time get the station and the railway? It is doubtful if any engineering feat, involving quite the same difficulties, has ever had to be dealt with in England. In a word, the old foundations—or most of them—must be removed and a new method of supporting the church introduced. The south wall needed to be entirely supported on steel girders, and the north wall partially. Most difficult of all, a new foundation was essential for twelve stone columns, which supported the central structure. The central structure weighs, perhaps, 500 tons, the north wall the same, and the south wall 350 tons—an entire weight of about 1400 tons. The central part of the site upon which the church stands is especially important, in that a great elevator will be placed there. It will carry passengers to and from the level of the station down below, and there will be connection with it from Lombard Street and King William Street. The engineers for the new railway are Sir Benjamin Baker and Mr. David Hay, while Mr. James Forgie is the resident engineer. Messrs. John Mowlem and Co. are the contractors.

An anecdote told by Mr. M. H. Spielmann with reference to the purchase of the drawing, "Merlin and Nimue," by Sir Edward Burne-Jones as an addition to the South Kensington Museum collection, throws a curious light upon the way in which the funds of that institution are managed. This particular drawing cost £800, and as the total annual grant for the extension of the water-colour collection is only £700, the extra £100 had to be provided out of money voted for other purposes. Yet by the Science and Art Department report just issued it appears that a further sum of £616 was spent in the same year on water-colour drawings, so that, as Mr. Spielmann points out, the total over-draft of the vote for drawings amounts to more than £700. It would certainly be interesting to know by what rearrangement of accounts a proper balance was struck.

THE sequel to the incident at a recent meeting of the Dover Town Council was introduced at a subsequent meeting, when Councillor Mackenzie, a local magistrate, gave notice to rescind the resolution passed that the repair of the damaged window in the grand hall of the Maison Dieu, known as Henry VIII.'s window, should stand over "until the holes got bigger." The Councillor said it was a scandal that, having such a property, the Council should refuse to preserve it. The Council had made itself the laughing stock of the whole country. Alderman Peake said that the Council was quite competent to do its own business without outside influences (?). Alderman Adcock suggested that as a way out of the difficulty Messrs. Clayton and Bell, who built the window, should be asked for an estimate which could be compared with that already received. Councillor Edwin said that a local tradesman could do the work. The holes were only 4in. or 5in. wide. Several Councillors subsequently inspected the window, and it was then seen that there were cracks in several panels immediately surrounding the holes.

AN interesting discovery in the way of inscribed stones and coins has been made at the Roman camp of *Æsica*, which is situated about two miles and a half north of Haltwhistle, and where excavations have been in progress during the past two years, under the direction of a committee formed in connection with the Newcastle Society of Antiquaries. Previous to this interesting discovery of the past few days, a good deal of excavation has been going on at this place, but hitherto the fragments of inscribed stones that have been turned up have been few and unimportant. Between the west gateway and the north-west angle of the camp is an extensive range of buildings erected against the inside of the western wall. Behind a stone trough near a hearth, in one of these, which seems to have been a smithy, were unearthed about twenty silver denarii of the earlier Emperors. In an adjoining building a quantity of charred wheat was found, the grains of which still retained their shape. At the north-west angle the great wall joins the camp. (By the great wall is meant the great stone wall extending from Tyne to Solway, and known as the "Murus," and which is frequently described as "Hadrian's Wall.") During the course of the excavations large quantities of pottery were turned up, chiefly consisting of the grey smother-kiln ware. A few small fragments of the parti-coloured Durobirian ware and much of the beautiful red Saurian ware were also found. Two fragments of the latter had on them, scratched through the glaze, graffiti of names of centuries that have also been found on centurial stones in that district.

A CONTEMPORARY points out that a Belgian syndicate is getting all the contracts for material for the Trans-Siberian railway, and then asks, "What are Englishmen doing to allow these Belgians to get all the plums?" The answer, says the Globe, is simple and "striking!"

THE death has taken place at Chelsea of Mr. J. Milo Griffith, the Welsh sculptor. When a boy in Pembrokeshire he commenced carving

heads in stone under difficulties, for his father, a stern Calvinist, broke one of them, saying he would have no carved images in his house. With his mother's cognisance, however, he worked in an outhouse, and afterwards obtained such technical instruction as was available. He first came to the fore at the restoration of Llandaff Cathedral, where he carved many of the stone capitals; but it was in 1870 that, at an industrial exhibition, his work attracted attention, and he presented several specimens of his carving to the Cardiff Free Library. His statues of John Batchelor at Cardiff and of Sir Hugh Owen at Carnarvon increased his reputation, and the Royal Cambrian Society subsequently employed him. In 1883 he commenced exhibiting at the Royal Academy, and ten years later he sent in six pieces and eight to the Walker Art Gallery at Liverpool. One of his Academy pieces, "The Flower Girl," was bought by Mr. Talbot, the then father of the House of Commons. In 1888 he designed the silver shield given to the Prince and Princess of Wales from South Wales, and later he went over to the Chicago Exhibition, and was for some time Professor of Art in a college at San Francisco. One of his most successful works was a statue of St. Brelia in marble, and he was the inventor of the Helix button. His last work was a design for the proposed national memorial to Llewelyn ap Gruffydd, which he sent for exhibition to the recent National Eisteddfod at Newport.

AN interesting discovery of skeletons has been made just outside the city, in the course of excavations made for laying drainage pipes. Some of the skeletons, which are supposed to date back to the time of the Romans, were perfect, but collapsed upon attempt being made to remove them. Others, however, were dug out in a fairly perfect condition, and have been removed. There are skeletons of horses, and the site on which they were found was probably at one time the scene of a pitched battle, and may possibly be an old burying ground.

THE discovery of the tombs of David and his successors, the Kings of Judah, is a problem that has hitherto baffled Palestinian archaeologists, although they do not despair of its solution. There is a curve in the famous tunnel in the Valley of Siloam, before it enters the Pool. It is quite unnecessary, save for the avoiding of some other structure, and it has been thought that this might be the tombs of the Kings. Dr. Bliss has recently made some excavations, but with no result. M. Clermont Ganneau writes pointing out that the clearance made by Dr. Bliss to the south of the curve is completely outside the area indicated by him as a probable site. Dr. Bliss dug to the south of the curve, outside its convex side, instead of inside the concave side, which naturally encloses the object it was desired to avoid, assuming that was the reason for the deviation. The ground marked by M. Clermont Ganneau is between the curve of the tunnel, and the intersection of the path descending from the south-east angle of the walls enclosing the Temple area. He suggests, moreover, that it is a pit or well entrance that should be looked for, not a doorway similar to those of ordinary ancient Jewish tombs, and he bases this upon a passage in Josephus who says that Herod, having pillaged the Royal vaults, constructed a monument to atone for his conduct on the mouth of the vault. This pit entrance would probably be relatively small, just large enough to admit a sarcophagus, thus rendering the task of discovery more difficult.

ONE of the most wretched districts in the East End of London has disproved in an effective manner the foolish heresies that used to be preached when the London County Council tried to force the doctrine of betterment on the House of Commons. The doctrine, by the way, appears to be abandoned for the present, as we never hear anything of it now. Betterment was alleged to be an act of justice, on the ground that only in that way could owners be compelled to contribute to public improvements. St. Luke's has

proved that owners do contribute, by the higher rates paid by the tenant, seeing that the rate is practically a deduction from the rent that otherwise would be paid. St. Luke's possessed, among other slums, the notorious Golden Lane, which almost everyone has heard of. The squalid rookeries in the Golden Lane district have been swept away, spacious new streets lined with good property built, and the locality has now become an important commercial centre.

THE scheme for the erection of a college at Dartmouth for navel cadets has been suspended, and it is probable that it will be abandoned in favour of a building near Portsmouth. Several months ago sketch plans were prepared by the Chief Constructor's Department at Devonport, by the direction of the Admiralty. These plans have now been returned to Devonport, with an intimation that nothing further is to be done in the matter. The probable abandonment of the Dartmouth scheme is believed to be due to legal difficulties in connection with the acquisition of the site, which is in Chancery.

MESSRS. POWELL write: "We observe that a block of houses has been pulled down in Holborn lately, and preparations made for rebuilding. Now these are just on the spot where many persons think it is necessary to relieve the cross traffic from Holborn to the Strand. The opportunity should be seized by the London County Council or the Holborn Board of Works to purchase a slice of this ground and set back the frontage some 10ft. or 12ft., thereby relieving the traffic immensely. Many thousands of pounds could be saved by taking advantage of opportunities like this, rather than by buying large houses at fancy prices, and paying compensation to tenants for goodwill besides. By widening Holborn at this spot there would be space gained for enabling vehicles to get out of the *mêlée* and keep the traffic flowing." The site referred to above is situated on the north side of Holborn, between Southampton Row and Kingsgate Street.

THE selection of a site in Greenwich Park for the magnetic pavilion has given much trouble, but one which appears in every respect suitable has been found on the east side of the Observatory, at a distance of between 300 and 400 yards.

VISITORS to the Paris Exhibition of 1900 will find that some extensive changes have been made in order to provide commodious approaches. Amongst these is to be a new Pont-au-Change, which, with the Pont St. Michel and the short Boulevard du Palais between the two bridges, joins the ends of the long, wide, and straight Boulevards St. Michel and De Sebastopol. It is in situation the oldest of the many bridges in Paris. The first one, built of wood in or before the tenth century, between the Ile de la Cité and what is now the Place du Chatelet, was for a long period the only one across the Seine. Louis VII. established a Bourse or Exchange close by, and erected houses along both sides of the bridge, which in 1141 meantime had been repaired with wood and stone, whereupon its name was altered from Grand Pont to Pont-au-Change. Having been swept away by a storm in the thirteenth century, it was replaced with another, entirely of wood. That was burnt in 1640. The successor, of stone, was relieved of its load of houses in 1788, and then widened and, in effect, reconstructed in 1858-9. Our own oldest bridge in London cannot boast of so varied a history, nor did it form the capital's fashionable lounge, as did the Pont-au-Change until the close of the sixteenth century.

THE scheme of decoration for the Nelson Column in Trafalgar Square by the Navy League on the anniversary of Trafalgar, on the 21st prox., will be carried out on a somewhat different plan to that adopted last year. The present intention is to erect an enormous crown on each side of the column and about half-way up, from which huge lengths of twisted laurel will depend as far as the lions.

THE London docks afford a very curious and interesting indication of what is going on—and what is not going on—all over the world for those who can read it. One item in a ship's cargo discharging in the Albert Docks a few days ago was 1000 tons of slates from America. The American quarries have been busy with the work that has not been done during the past twelve months on Lord Penrhyn's estate. It is said that not only roofing slates, but the large and expensive slabs required for bagatelle and billiard tables have been brought in large quantities from the other side of the Atlantic during the North Welsh suspension of work. Whether, having once found the market, the transatlantic quarries will continue to hold it, remains to be seen.

A GREAT amount of local interest has been taken in the new cross which has just been unveiled in the parish churchyard at Folkestone. In former days the mayor was elected on the site of this cross, the inhabitants being annually called together for the purpose on the "Feast of the Nativity of our Blessed Ladye" by the blowing of a horn, which is still preserved in the council chamber of the town. The cross on which the ceremony was observed in those days has long since been demolished, but the steps on which it had been erected remained, and on these a sun-dial had taken its place. The new cross has cost close upon £300, which sum has been subscribed by the townspeople.

THE discovery of a valuable Murillo is reported from Copenhagen. The canvas was found in a dealer's possession, and M. De la Rue has no doubt of its genuineness. He estimates its value at 600,000 francs. It is believed that the picture is one painted by Murillo for the Jesuit monastery of San Ignacio de Loyola, in San Sebastian. The middle portion is well preserved, and is distinguished by the freshness and warmth of the colours, while the upper part has apparently been somewhat unskillfully restored by a northern artist. It is thought that it was removed from the monastery during the French invasion, and that at some subsequent time it was taken to England. Of its further history all that is known is that it was sold to a Norwegian by an Englishman on condition that it should not be offered for sale, a circumstance which seems to indicate that it was at one time stolen. It probably came to Denmark about 1820. M. De la Rue believes that inquiries about the canvas must have been published at some time, that it was subsequently forgotten, and that no competent critic has had an opportunity of examining it.

At an interim meeting of the managers of the Metropolitan Asylums District, copies of an order authorising the managers to purchase from the Corporation certain land on the Victoria Embankment at the corner of Carmelite Street as a site for new offices, at a sum not exceeding £53,000, were laid before the Board. Authority was given for the borrowing of the amount, with a sum not exceeding £250 to cover expenses connected with the purchase. The Chairman moved that the question should be referred to the Works Committee in order that the members might submit the name of an architect to prepare plans of the new building. No further delay, he said, ought to take place. Mr. P. Wells moved as an amendment that the Works Committee should bring up the names of three architects. After some discussion, the amendment was carried by a small majority, and adopted as a substantive motion. The Local Government Board has decided to sanction the purchase.

If it is true that the Marquis of Bute has bought Pluscardine Abbey from the Duke of Fife for the purpose of restoring it for religious use, it is a pity that he did not decide to build a brand new monastery somewhere else instead of tinkering up an old one. Pluscardine was founded in the earlier half of the thirteenth century—that golden age of monastic institutions—and was one of the three Cistercian houses in Scotland. The

abbey church, like most of its kind, was cruciform. What is left of it now are the ruins of the choir, the transepts, the eastern aisles, and the central tower. The vestiges of our ancient abbeys are the fairest memorials in our land of the past that is dead, and as such they have a beauty and a meaning that would be destroyed in the attempt to restore them to a life that belonged to another age. To interfere with the relics of the old religious foundations which justly command our veneration by a mimic reproduction of the conditions which called them into being is to take away their sanctity. By all means let Lord Bute found a new abbey if he is so minded, but let him spare the ruins of the old ones.

CONSIDERABLE restorations are contemplated at Chichester Cathedral, including the rebuilding of the North-west tower. This tower is entirely detached from the body of the edifice, after the manner of an Italian campanile, and it is, we believe, the only example in this country. Rugged and time-worn, it is an imposing and venerable relic of the past. It is to be hoped that it will not be renovated out of all its character. The plans for the restorations have been worked out by Mr. J. L. Pearson, R.A.

ARRANGEMENTS have been practically completed for the removal next month of the Government Laboratory from Somerset House to the new premises near Clare Market. Professor Thorpe, the principal, has personally interested himself in seeing that every modern improvement has been introduced into the new premises, which, outwardly unpretentious, will internally be as near perfection as possible. Indeed, it is anticipated that the institution will soon come to be acknowledged as the most important general practical laboratory in the kingdom.

"HERE lived Prince Louis Lucien Bonaparte from 1854 to 1891." Such is the inscription in letters of gold on a blue ground which has appeared within the last few days upon the double-fronted house in Westbourne Grove, where the last of the great Corsican's nephews spent his declining years. The tablet has not been set up by the Society of Arts, but owes its existence to the pious impulse of the speculator who bought the freehold from the Prince's widow, and is now converting it into residential flats. Soon there will not be a trace left of the semi-imperial splendour that adorned the old scholar's home. The library has passed into the hands of the trade; the pictures, engravings, statues, and fountain have been carried off by the family. Nothing remains save two or three elaborate marble mantelpieces, brought from Italy at great cost, and bearing the initial "N" with the Imperial eagle.

THE first hotel in Spitzbergen erected in our times (for at least several inns existed in previous centuries, now extinct) is also the most northern hotel in the world. It is thus described in the "Vossische Zeitung": "Built in Norwegian style, has a large hall, and a quantity of smaller rooms, with thirty beds."

MR. ASTON WEBB, writing to the Times, from 19, Queen Anne's Gate, Westminster, says:—"Will you allow me, as an occupier for many years of one of the houses most affected by the alterations now in progress, to endorse entirely Mr. Edmund Phipps' letter to you on this subject? The laying down of asphalt is bad enough, but the obliteration of the corner as described by Mr. Phipps appears to inconvenience no one, and can be regarded as simply a wonton and ruthless interference with one of the best remnants of early eighteenth-century architecture still existing in London. This quiet corner asked for nothing to 'improve' it, and wanted nothing except to be left alone. Why, then, should the vestry try to spoil it?"

THE municipal authorities all over Europe need to be watched by the higher authority of

the State in order to prevent them from wilful demolition of their most valuable and often least valued treasures. Probably there are some English tourists who are familiar with the splendid mediæval "Wasserthurm" in the little town of Liestal, the capital of the half canton of Baseland. At a meeting of the Gemeindeversammlung a few days ago it was put to the vote whether this fine old monument should be pulled down. By a majority of 179 votes against 135 its destruction was resolved upon. The only hope of its preservation lies in the prompt intervention of the Swiss Society for the Preservation of National Monuments.

LORD DERBY, in opening a technical school at Preston, observed that he did not wish to speak disparagingly of Art, but in a land like ours the future depended more upon technical work than upon Art. In Germany the people had a thorough education and complete technical training. When Englishmen spoke disparagingly of German productions, he was not sure that there was not occasionally a note of envy to be detected. Germany was advancing at a great rate, and England was content to go a little slower. Whilst we had advanced much these last fifteen years, others had done so still more, and he urged that, throughout the kingdom, education should not be regarded as an abstract possession, but should be vigorously applied to the better conduct of our trade. Lancashire was a proud leader in technical work, and her sons and daughters must work on with courage and resolution to more than maintain her strength.

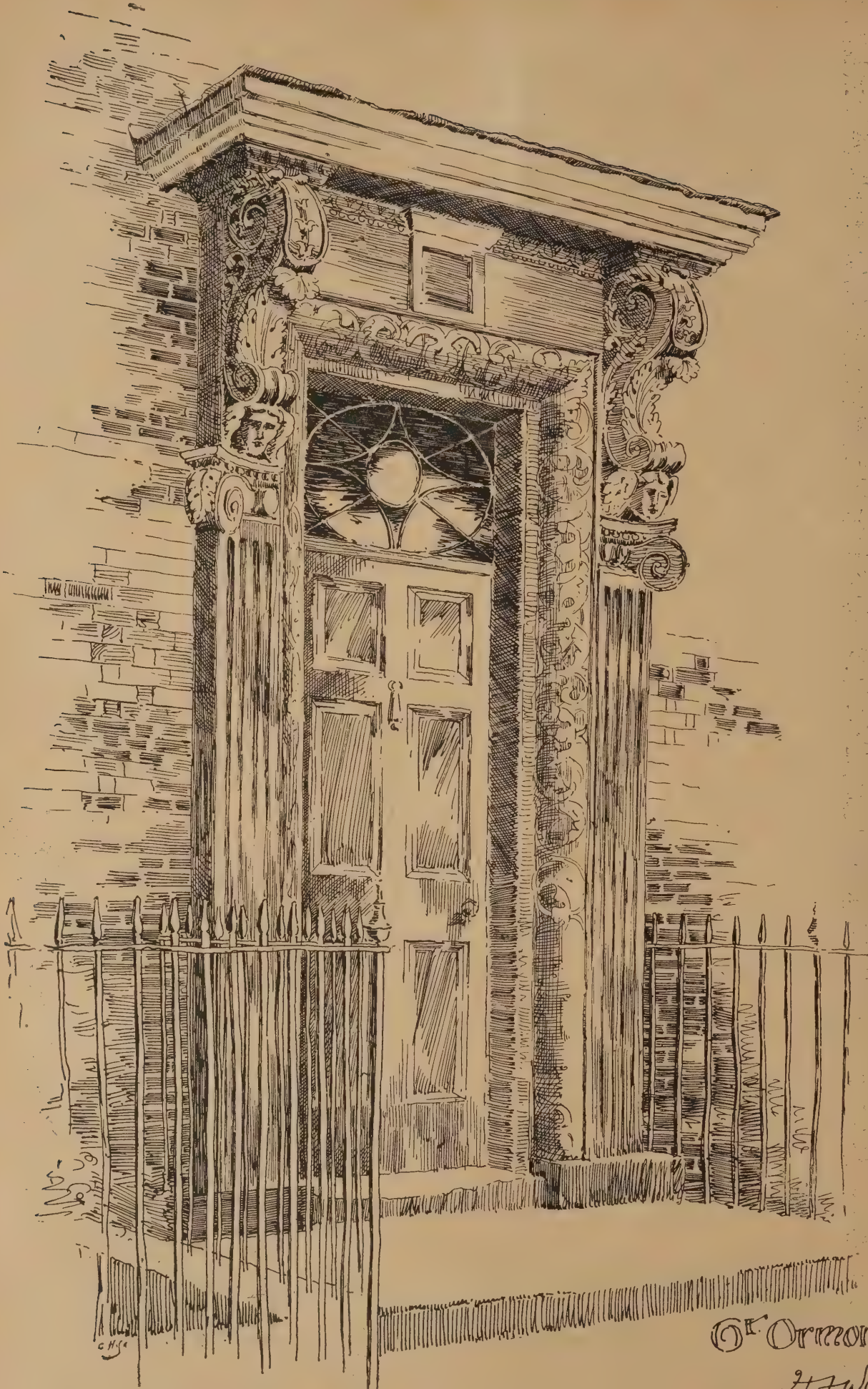
THE artists who are to decorate the foyer of the new Paris Opéra Comique have just been selected. The ceiling is to be painted by M. Aimé Morot, and MM. Falguière and Antonin Mercié are each to be entrusted with a statue. One of the statues, that to be executed by M. Mercié, is to represent the art of dancing, and, according to the gossip of the Boulevard, it was M. Falguière's sensational treatment of this subject in a statue exhibited at last year's salon that prevented this artist from obtaining the order for both works of Art.

FOR some time past the governors of the Holywell Intermediate School, now being erected in a field at Penymaes, near the town, have been sinking in search of water. To this end they engaged the services of a well known water-finder, Mr. J. Stone, of Spilsby, who indicated two or three spots where water might be found. The first was successful, but unfortunately in sinking deeper the water was lost. Under these circumstances a new well was sunk in one of the alternate sites pointed out by Mr. Stone, and at a depth of 65ft. an excellent supply, yielding 2000 gallons a day, has been obtained.

THE Tramway Company of the Huddersfield Corporation is considering several important proposals to extend the Huddersfield Corporation Tramways to outlying parts of the borough. The propositions, which will be submitted to the Council in due course for approval, include the following:—To construct a double line of rails from New Street, from the point where a double line already exists, along Buxton Road to Chapel Hill; to lay a tramway, 1600yds. long, from the present terminus at Paddock to Longwood; another, 1600yds. long, from Fartown Bar to Sheepscroft; another, 1400yds. long, from Crosland Moor Bottom to the borough boundary on the Manchester Road; and another from the Salendine Nook terminus to Out Lane. Most of these proposals have been before the Council on former occasions and rejected.

It is with regret that we have to announce the death of Mr. George Kenyon, of 68, South Audley Street, and Broad Sanctuary Chambers, S.W. Mr. Kenyon's decease will be deeply regretted by his many friends, and we have ourselves many kindly thoughts of one who on several occasions had shown us marked courtesy.

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LONDON DOORHEADS. (FIG. 5.) SKETCHED BY H. F. WARING.



LONDON DOORHEADS. (FIG. 6.) SKETCHED BY H. F. WARING.

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Surveying and Sanitary SUPPLEMENT.

SEPTEMBER 22ND, 1897.

The Sanitary Congress at Leeds.

WE have been told that there is beginning to be a general feeling in the majority of towns that the time has come when, in the matter of sanitary advancement, we should rest and be thankful. This, in days when the progress of sanitary science has passed out of a canter into a gallop, is a dictum which perilously approaches the absurd; and were evidence of accentuated vitality in this connection necessary, it was afforded last week at Leeds at the Congress and Health Exhibition of the Sanitary Institute. The aim of the Institute is wide and comprehensible; it is, briefly, to preach the gospel of health and true hygienic faith, and, by such means as a representative Exhibition of modern sanitary appliances and apparatus affords, to demonstrate the practical application of its teachings. The President of the Institute, in reviewing the sanitary situation of to-day, was able to report that we are "progressing favourably"—in fact, to congratulate his fellow members on the marked approach towards more healthy conditions of life among our vast populations; though at the same time he could not remain silent on the dangers still encircling us on every side, and of the increasing mortality due to certain forms of disease. Not the least interesting of the many references contained in Dr. Farquharson's speech was that to the need for the appointment of a Minister of Public Health, and in his advocacy here, we doubt not that he has the warm support of the great body of sanitarians, who, with him, are not content to rest merely on the record of the past quarter of a century. Of course the public aversion to stringent sanitary regulations prompts objection to the creation of a Government Department of Health, and we are told that present needs are amply met by the Local Government Board. It is, however, merely a matter of time when such health department will be formed. It is important that local authorities should be alive to the abuses to be dealt with in the interest of health, and it is to this end that the present Congress and Exhibition attains its greatest measure of utility. We give a summary of the congressional proceedings, but are compelled to withhold our report of the Exhibition.

The President (Dr. Farquharson, M.P.), in his opening address, said that the work of the Institute had now passed through three distinct stages. Having at first been ridiculed and afterwards opposed, it had finally come to be accepted by public opinion. Ventilators were no longer stuffed up; the working classes, no less than their employers, were

beginning to be connoisseurs in the quality of their atmospheric conditions, enjoyed a good wash as much as a University graduate, and were fully prepared to appreciate the advantages of hygienic house accommodation at other people's expense; so that the Institute had reached the stage of enthusiastic acceptance and universal approval, and the sanitary reformer was as much petted and caressed as he was once scouted and despised. No properly instructed person, in these enlightened days, would dream of taking a house without a thorough inspection of, and report upon, its sanitary arrangements; while water analysis and food analysis kept us fairly free from adulteration, and most of us knew pretty well the amount of help given us by the law in keeping our health fairly sound. During the last quarter of a century, the English death-rate had been reduced from twenty-two to eighteen per annum, by

THE JOINT LABOURS OF SANITARIANS

in the prevention of disease, and of doctors in curing it. He quoted Professor Matthew Hay, of Aberdeen, to the effect that no great further reduction could reasonably be expected. A death-rate of only ten per 1000 would mean that everybody born would live to be 100 years old. Probably it would be found that the natural elements of decay in men, as in all living things, which made eventually for death, independently of environment, would not permit of a lower general death-rate than about fourteen to fifteen, even under the most favourable hygienic conditions, being reasonably attainable. So that by the time we had gone as far in reducing the death-rate as we had come in the past quarter of a century, we should have reached the ultimate *minimum*. But it would certainly not be in another quarter of a century. After a glance at the excellent sanitary work done by the officials of the Local Government Board, under the direction successively of Sir John Simon, Sir George Buchanan, and Sir Richard Thorne-Thorne, as well as at the writings of Mr. Fridgin Teale and Professor Corfield, Dr. Farquharson spoke of the improvement which had been effected in the health and comfort of the members of the House of Commons by the exclusion of sewer gas from the building some ten or twelve years ago. This sanitary operation had been of national importance in improving the health and temper of our senators and enhancing the quality of their work. Dr. Farquharson next sketched some of the

DANGERS TO HEALTH

which seem to be inseparable from the crowding together of great populations in towns, and discussed the means by which these dangers might be diminished. Among those dangers he made special mention of diphtheria, and explained its increase, in the words of a private

communication from Sir R. Thorne Thorne, as being due to the herding of our child population in elementary schools at the very age at which they are most susceptible of the disease. The increase in diseases of the nervous system, and especially insanity, was referred to, and attributed to the increasing stress of modern life; and the most pressing sanitary questions of the day, such as the supervision of meat supplies and of slaughter-houses, and the provision, wherever possible, of extra-urban dwellings for the working classes, were briefly considered. The president entertained a very poor opinion of the House of Commons in its dealings with public health. Both sides, he declared, were bad, but that to which he belonged was the worst, for a deep-rooted suspicion of scientific methods and of progressive sanitation existed in certain Radical quarters, and abstract views of personal liberty and distrust of the so-called tyranny of doctors swayed a kind of plausible sentiment which was usually irresistible in its paralysing effects upon hygienic legislation. In such a state of feeling, a private member could do nothing until sanitary questions were taken up by the Government of the day. He looked forward to the appointment of a Minister of Public Health as the means, eventually, of obtaining for these questions the consideration which their importance demanded. The proceedings were continued

ON WEDNESDAY,

the second day, when, in the Town Hall, School Board Offices, and elsewhere, conferences on various subjects were held. Major L. Flower, who presided at the conference on River Pollution, said that years of experience had confirmed the opinion he held in 1876, that if we were to have our rivers purified the whole country should be mapped out into districts, each under a competent sanitary officer, who should have large powers under conservancy boards formed to legalise his acts. There was not a single pollution for which there was not a remedy. If not already shown, chemical science was sure to find some means of purifying or cleaning effluents from factories which would be effective and remunerative; and if manufacturers ceased to discharge refuse into the sewers, the treatment of sewage at the outfall would be rendered less difficult. Major Flower dealt with legislation on the subject, which he contended was inefficient. He held that the remedies were mainly improved legislation, the abolishing of all special clauses, and the making

THE FOULING OF STREAMS

a penal offence. Much might be done by individual action, but with respect to river pollution no half measures must be adopted. What the country required was a firm and sound Act of Parliament having compulsory

powers entrusted to competent men to carry out, administered in each watershed by a man who, by his personal influence, could induce polluters to abate their nuisance—not necessarily an autocrat, but one who knew how to exercise the duty entrusted to him with judgment and firmness, governed by conservancy boards to legalise the acts of such officials. The thing which lay at the root of the matter was waste, and he advocated that the sewage of a country should be returned to the land to produce a fresh supply of food. They should try to get rid of the sewage at a reasonable cost, but if at a loss, the preservation of springs, streams, and rivers from poisonous contamination was of infinitely greater importance. There was an enormous amount of waste in the discharge of trade refuse into streams, but these products might be turned to value for the good of the manufacturer, as well as for the good of the country. In conclusion, he remarked that, looking to the question from all points of view, and well-nigh in despair of obtaining such an enactment as would coincide with the views of all persons interested, why should they not combine in a guild, and endeavour to

BRING CO-OPERATIVE PRINCIPLES TO THEIR AID?

Let the members of that league act upon the principles which had governed the Fisheries Preservation Association. He submitted that such an Association was quite possible, and if properly organised might meet with the success which had been remarkable in other societies with different objects.—Dr. G. Sims Woodhead followed with an interesting address on the various processes taking place in tidal estuaries, which had for so long been regarded as receptacles for sewage. It was essential that these estuaries should be relieved of the sewage matter usually deposited there, and he thought that in the near future they should work hard to keep out of such estuaries all sewage matter whatever.—Mr. R. E. Middleton, in a paper on "River Pollution from an Engineer's Point of View," said no chemical treatment of sewage was sufficient to produce an effluent of satisfactory purity. All sewage matter might be efficiently treated by filtration through sand and gravel in the same way as water was filtered, though at a slower rate, and with more frequent periods of intermission. The Local Government Board were opposed to this system unless it was supplemented by an area of land sufficient to purify the sewage, should the filter break down. This, although apparently a short-sighted policy, was not really so, owing to the want of care and attention which many sewage disposal works received.—In the medical officers' section, a paper was read by Dr. J. Brown on "Poisoning from Canned Foods, with Suggestions on Prevention." At a conference of ladies, Mr. Fawkes, who presided, congratulated the women upon the official recognition they had received from public sanitary authorities. The first woman inspector was appointed by the Nottingham Corporation in 1892. Since that date eighteen others had been appointed in various localities. A resolution, calling attention to the good work that has been done in Manchester and other large cities by women inspectors, and urging the desirableness of one or more women being appointed in Leeds, was passed. A discussion followed the reading of a paper by Mrs. R. W. Eddison, dealing with the work of the Health Department of the Yorkshire Ladies' Council of Education. In the sanitary inspectors' section, Mr. P. Fyfe, of Glasgow, pleaded earnestly that inspectors should become more united, and that the fruits of union would soon be reaped by every man in the United Kingdom who bore the official badge of a sanitary authority. Of the several sectional meetings of the congress held

ON THURSDAY

the third day, the most interest was evidently taken in that devoted to sanitary science and preventive medicine, the president being Mr. T. Prigdin Teale. His opening address mentioned the fact that it was 20 years since there was a public discussion in Leeds on sanitary science. But now medical science was concerning itself

more and more with the tracking to their source of the origins of diseases with a view to prevention, and was no longer content merely to repair the ravages of disease which ought to have been prevented. Sanitary science worked as the handmaid of medicine in discovering the methods by which the evils of disease could be averted. Preventive medicine was a new science, and had the vigour and enthusiasm of youth.—In this section Dr. Spottiswoode Cameron, the Leeds medical officer, introduced the subject of disinfection, and explained the methods carried out in Leeds for the purpose.—Professor Delpine followed with some practical remarks on the same subject, and especially recommended the general utilisation of certain vapours.—Mr. H. Kenwood contributed a paper on the disinfection of rooms by the use of these vapours.—Notes on the examination of disinfectants by Mr. W. De Fries and a paper by Professor E. F. Trevelyan on the action of diphtheria bacillus outside the human body and the prevention of disease followed.

THE ENGINEERING AND ARCHITECTURE SECTION

of the congress was presided over by Mr. Lewis Angell, who in his address said the most striking feature of the Victorian era was the development of the practical and useful. It was not until the reign of Victoria—and almost identical with Her Majesty's accession—that the professional civil engineer came into existence, a profession of which England was the origin and the cradle. Engineering and architecture represented the constructive side of sanitary science. He then went on to trace the rise of the present system of sewers and of the new Pollution Acts, and passed to the subject of house sanitation. He maintained that all living rooms should have ample means of ventilation, and that there should be no connections between the dietetic water supply and the drains. The housing of the working classes was a prominent feature in sanitation, and whether this should be accomplished by flats or by workmen's trains was a matter for serious consideration. It was not by legislation or officialism that real progress was to be made, but in the education of the people.—A paper by Mr. E. T. Hall on "Fever Hospital Construction" followed. He emphasised the importance of segregation of persons inflicted with infectious diseases. The site should be on open ground and elevated, but one with steep slopes should be avoided. The heating of wards was best done by low-pressure hot water radiators. The paper also dealt exhaustively with wards and ward accessories—doors, windows, sinks, laundries, and water supply—and concluded by urging on all local authorities the desirability of making their hospitals architectural in treatment.—An address was delivered at the close of the other proceedings by Mr. H. Percy Boulnois on the sanitary advances in municipal engineering.

At the Hyde Borough Police Court the Town Clerk applied for an extension for three months of the order made by the magistrates on November 12th last, that within nine months the Hyde Corporation should apply to the Local Government Board to sanction a loan for the extension of the sewage works. The delay was caused by difficulties in preparing a filtration scheme.

DR. RICHARD JONES has compiled a valuable report and tables which prove that sanitation in the county of Merioneth is defective. During the year, 1337 cases of infectious diseases have been notified, as compared with 636 in 1893. There are no infectious diseases hospitals in the county except the workhouses and one private hospital; and, in order to stamp out these infectious diseases, the medical officer declares that infectious diseases hospitals are absolutely necessary. Proceeding, he deals with the lack of suitable dwelling-houses, and says that in some districts great overcrowding exists, and that the house accommodation of the working classes is far from what it ought to be.

Surveying and Sanitary Notes.

At a meeting of the Water and Sewers Committee of the Swansea Corporation on Tuesday week, a discussion took place as to the continual flooding of the lower parts of the town, which forms a grievous source of complaint. In reply to Mr. Freedman, the Chairman (Mr. W. Watkins) admitted that the town had practically outgrown its drainage system. The Borough Engineer said the pipes were too small, and ought to be re-laid—in parts, at any rate.

THE Altofts Urban District Council has applied to the Local Government Board for permission to borrow £5500 for the construction of new sewage works. Mr. H. H. Law, Local Government Board Inspector, has held an inquiry relative to the application.—Mr. J. Richardson, consulting engineer, explained that the present sewers will be utilised, but the works will be entirely reconstructed on the site of the old ones.—In answer to the Inspector, it was stated that at present the sludge from the tanks was spread over the filtration area.—The Inspector expressed surprise at this state of things, and remarked that he could quite understand, under these circumstances, that the Council did not get a decent effluent, and that the Rivers Board was taking action in the matter.

THE members of the Peterhead Town Council recently visited the sources of the water supply of the town. After inspecting the Grange reservoir, which has a holding capacity of 700,000 gallons, and which was found to be in good order, the company drove to the new reservoir at Forehill, about 2½ miles from the town. This reservoir, which has a capacity of 2,008,012 gallons, was constructed during the past winter at a cost of nearly £2000. It is 13ft. deep when full, the length and breadth of the bottom being 206ft. and 93ft. respectively, and on the water-line 240ft. long and 126ft. wide. It is made out of the clayey nature of the ground, the face being built with rubble stones. Owing to the wet and stormy weather during the winter, the work of construction was considerably retarded, and the interior was only completed on April 24th last. Since that time the reservoir has been filled to a depth of 9ft. 10in., or an estimated quantity of 1,373,875 gallons. It will not be possible to test to the utmost extent the benefit of the reservoir, seeing that it has not been quite filled, but so far there has been evidence of the sufficiency of the water supply and especially of the utility of the large storage accommodation to meet the great demand for water for household and trade purposes during the day. With the reservoir at the Town House there is now available storage for 2,754,478 gallons, and this, with an average daily supply from the Cairnatto and Wellington sources of 301,160 gallons per day, is calculated to be sufficient for all purposes for many years to come. This is evidenced by the fact that up to the present the reservoir has only been reduced to the extent of a few inches, the loss during the day having been almost fully made up during the night. Had the Forehill reservoir not been in existence and pretty well filled, the likelihood is that the authorities would have been put in a state of alarm, as the great consumption during the day, especially during the present dry weather, has taxed the Grange reservoir to its fullest extent, and each evening lately it has been pretty far reduced. A hearty vote of thanks was accorded to Mr. and Mrs. McGillivray for their hospitality, which Mr. McGillivray suitably acknowledged. The health of Mr. Anderson Pirie, the contractor for the new reservoir, was also pledged, Mr. Pirie responding. The company returned to town in the evening, having enjoyed a capital day's outing.

A MEETING was recently held to consider the advisability of erecting a pier or landing stage at Dawlish. Mr. G. B. Avant (chairman of the

District Council) presided, and said some years since a scheme was adopted and a Provisional Order obtained by the then proprietor of the Albert Hotel, and even some of the iron work was sent off, but the matter went no further. In 1887, the Local Board advertised for plans and estimates for a promenade pier. Five firms responded, and the estimate ranged from £5000 to £14,000, the pier to be erected outside the viaduct and extended about 900 feet seaward. The Board did not then see its way to involve the ratepayers in such an expense. In 1896 Mr. Coombes was called in, and he supplied the plans now before the meeting.

No. 1 scheme was to form a harbour extending in a south-easterly direction from under Lee Mount, to be 20ft. wide, and run 440ft. into the sea, and then 260ft. in another direction, to cost £17,000. No. 2 scheme was for a pier to run 500ft. in length from the new sea wall, to be 15ft. wide, and cost £5000. No. 3 scheme was a pier to be carried out 930ft. near the present breakwater; estimated cost £3700. The diversity of opinion held by members of the Council caused them to lay the matter before the ratepayers. After considerable discussion it was resolved that the District Council be asked to consider No. 3 scheme.

SANITARIANS will watch with much interest the development of the sewerage scheme proposed for the city of Manchester. The scheme, which has received the approval of the City Council, and which will be embodied in a bill to come before Parliament, is on a large scale. It is that the treated effluent of the city sewerage should be carried through a culvert to the estuary of the Mersey. Preliminary estimates as to the expense of schemes of this character are not generally overdrawn, and it is indicative of the magnitude of this scheme that the total expenditure is estimated at a quarter of a million.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Sept. 24	Ault Hucknall, Derbyshire—School, &c.	School Board	Rollinson and Son, 13, Corporation-street, Chesterfield.
" 24	Ivybridge, Devon—School Alterations, &c.	School Board	— Lake, Highland-street, Ivybridge.
" 24	Yearby, near Kirkleatham—Reading-room		A. Whipham, 59, High-street, Stockton-on-Tees.
" 24	Featherstone—Cemetery Boundary Walls, Walks, &c.	Burial Board	W. H. Fearnley, Architect, Station-lane, Featherstone.
" 24	Liskeard—Villa	J. H. Blamey	J. Sansom, Architect, Liskeard.
" 25	Westbury-on-Severn & Dymock, Glos.—Police Stations	Gloucester Standing Joint Committee	M. H. Medland, 15, Clarence-street, Gloucester.
" 25	Blackburn—St. Barnabas' Schools	Building Committee	F. J. Parkinson, 9, Richmond-terrace, Blackburn.
" 25	Bovey Tracey, Devon—School Building at Heathfield.		J. W. Rowell and Son, Architects, Newton Abbot.
" 25	Ebchester—Sixteen Houses	Hamsterley Colliery	Hamsterley Colliery Offices, Ebchester, R.S.O.
" 25	Great Yarmouth—Two Houses	J. Ellis	C. G. Baker, Town Hall Chambers, Great Yarmouth.
" 27	Forres, Scotland—Additions to Hydro. Establishment.	Board of Guardians	J. Forrest, 129, High-street, Forres.
" 27	Lewisham, S.E.—Lunatic Wards at Workhouse.	Corporation	H. C. Mott, 286, High-street, Lewisham.
" 27	Liverpool—Additions, &c., to Baths.		W. R. Court, 15, Great George-square, Liverpool.
" 27	Pencoed, Wales—Chapel		Rev. S. Jones, Coychurch, Bridgend.
" 27	Pudsey, Yorks.—Cabinet-maker's Workshop		W. Davey, 27, Brunswick-road, Pudsey.
" 27	Tunbridge Wells—Waterworks Boiler House at Pembury	Corporation	T. E. W. Mellor, Town Hall, Tunbridge Wells.
" 27	Glasgow—Binding Chimney Stalks at Kelvinhaugh	Corporation	D. M'Coll, 64, Cochran-street, Glasgow.
" 27	Portrane, Ireland—Temporary Buildings	Lunatic Asylum Commissioners	G. C. Ashlin, 7, Dawson-street, Dublin.
" 27	Winton—Dwelling-house, &c.	R. Hurst	W. Allen, 16, Ryton Village East, Ryton-on-Tyne.
" 27	Winton—Dwelling-house, &c.	R. Mawson	W. Allen, 16, Ryton Village East, Ryton-on-Tyne.
" 28	London, E.C.—Alterations to Underground Convenience	Commissioners	Engineer to Commission, Guildhall, E.C.
" 28	Bradford—Houses and Shop at Lidget Green	West Ham Corporation	S. Robinson, 15, Cheapside, Bradford.
" 28	Chadwell Heath—Foundations and Lodge at Asylum	Guardians	L. Angell, Borough Engineer, Town Hall, Stratford.
" 28	Ormskirk—New Board Room and Offices	Council	Willink and Thicknesse, 14, Castle-street, Liverpool.
" 28	West Ham—Asylum Foundations, &c.		L. Angell, Borough Engineer, Town Hall.
" 28	Lumphman, Scotland—Public Hall		Parish Council's Clerk, Lumphman.
" 28	Leicester—Excavating and Foundations	Borough Asylum	G. T. Hine, 35, Parliament-street, S.W.
" 29	Pontardawe, Wales—Infant School	Llangwiche School Board	W. W. Williams, Island-chambers, 63, Wind-street, Swansea.
" 29	Pellon, Halifax—Dwelling-house		C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
" 29	Rotherhithe, S.E.—Shelter at South Wharf	Metropolitan Asylums Board	J. D. Mann, Norfolk House, Norfolk-street, Strand, W.C.
" 29	Burnley—Memorial Fountain, Queen's Park		Borough Surveyor, Town Hall, Burnley.
" 29	Harpenden, Herts.—Police Station	County Council	County Surveyor, 41, Parliament-street, S.W.
" 29	Homerton—Walls and Laying-out Grounds	Hackney Union	F. E. Coles, Clerk's Office, Homerton, N.E.
" 30	Bootle, Lancs.—Erection of School	School Board	Cox and Marmon, 11, Dale-street, Liverpool.
" 30	Brentwood, Essex—Boiler House, Offices	Lunatic Asylum Visiting Committee	Medical Superintendent, Brentwood Asylum, Essex.
" 30	Seaford—Alterations to Sewage Pumping Station	Urban District Council	B. A. Miller, 3, Clinton-place, Seaford.
Oct. 1	Redditch, Wales—Police Station Buildings	County Council	County Surveyor, Pierpoint-street, Worcester.
" 2	Brentwood—Boiler House, &c.	Governors of Asylum	Medical Superintendent at the Asylum.
" 4	Banbridge, Ireland—Station Master's Office, Roofs, &c.	Great Northern Railway, Ireland	Engineer-in-Chief, Amiens-street, Dublin.
" 4	Halifax—Drapery Warehouse, &c.		Jackson and Fox, 22, George-street, Halifax.
" 5	Bethnal Green—Band Stand, &c.		Architect's Department, 17, Pall Mall East, S.W.
" 6	Yelverton—Farmhouse, &c., Latter Hole		R. C. Merson, Architect, Hollybank, Yelverton.
" 7	Sligo—Pumping House Floor and Door	Infirmary Governors	Secretary, Grand Jury Office, Court House, Sligo.
" 7	Belfast—Central Police Station, &c.	Corporation	City Surveyor, Belfast.
" 7	Mullingar, Ireland—Additions to Asylum	Commissioners	H. Williams, Secretary, Customs House, Dublin.
" 12	North Woolwich—Building for Stores and Offices	London County Council	Engineer's Department, Spring-gardens, S.W.
" 13	Haverstock Hill, N.W.—Porter's Lodge at Hospital	Metropolitan Asylums Board	T. D. Mann, Clerk, Norfolk House, Norfolk-st., Strand, W.C.
No date.	Bournemouth—Wesleyan Church		R. Curwen, 112, Hamilton House, Bishopsgate-street With-out, London, E.C.
"	Bromsgrove Lickey—Residence		F. J. Yates, 1, Newhall-street, Birmingham.
"	Carlisle—Warehouses		T. T. Scott, Architect, Carlisle.
"	Crewe—Fitting-up, &c., Technical Institute	Technical Institution Committee	J. A. Jenkins, Secretary, Municipal Offices, Crewe.
"	Gwersyllt, Wrexham—Additions to National Schools		— Plant, Wilderness Works, near Wrexham.
"	Portadown, Ireland—Convent	Sisters of the Presentation of the Sacred Heart.	A. Ferguson, 36, Royal Avenue, Belfast.
"	Portsmouth—Five Cottages		Post Office, Portsmouth.
"	Roths, Scotland—Town Hall		R. B. Pratt, County Bank House, Elgin.
"	Swanage—Burlington Hotel		Parce and Offer, Dorsetshire Bank-chambers, Bournemouth.
"	Walthamstow & Enfield—Terraces & Cottage Residences		E. Beaumont, 78, Fleet-street, E.C.
"	Water Fulford, Yorks.—Farmhouse		D. Cayley, 7, Blake-street, York.
"	Leeds—Alterations	Maggate Mills	J. J. Mosley, 6, Wormald-row, Leeds.
"	Bletchingley—Workhouse Enlargement, &c.	Godstone Union	F. Elliff, Architect, Caterham.
"	Ramsay, Huntingdon—New Church		W. Waddington and Son, 17, St. Ann's-square, Manchester.
"	Skipton—Six Houses		J. Hartley, Exchange-buildings, Skipton.
"	Halifax—Two Houses		— Greenwood, 30, Union-street, Halifax.
"	Hexham-on-Tyne—Chimney		J. Fenwick and Sons, Limited, Hexham-on-Tyne.
"	Holbeach—Public Hall	Public Hall, Limited	J. Sawyer, 63, Chancery-lane, London, W.C.
"	Lancaster—Two Houses		F. W. Buckham, Saw Mills, Lancaster.
"	Leeds—Extension of Mill Premises	Roberts, Mart, and Co., Limited	Ambler and Bowman, 9, Park-place, Leeds.
"	Llanelli—Additions, &c.		W. Griffiths, Architect, Llanelli.
"	London, S.E.—Pair Semi-detached Villas		S. Evans, 36, Heron-road, Heme Hill, S.E.
"	Long Eaton—Shop Alteration	Leeds and Leicester Boot Co., Limited	E. R. Ridgeway, Architect, Long Eaton.
"	New Ferry, near Birkenhead—Mortuary	Lower Bebington Urban District Council	J. Young, 78, Stanley-terrace, New Ferry, near Birkenhead.
"	Stockton-on-Tees—Buildings, &c.	Tramways Company, Limited	C. Robinson, Engineer, Bridge-road, Stockton-on-Tees.
"	London—Building Materials for 2000 Cottages		W. A. C., care of Walter Hill and Co., 67 & 69, Southampton-row, London, W.C.
ENGINEERING—			
Sept. 24	Pontefract—Engines and Boilers	Guardians	Greaves and Co., Architects, Corn Market, Pontefract.
" 25	Leeds—Electric Lighting	Union Guardians	T. B. Wilson, 12, East-parade, Leeds.
" 25	Mitcham—Laundry Machinery	Holborn Union	C. E. Vaughan, 25, Lowther-arcade, Strand, W.C.
" 27	St. Alban's—Heating and Ventilating Printing Works	Oxford Smith Limited	G. P. Smedley, 110, St. Martin's-lane, Charing Cross, W.C.
" 29	York—Widening Railway	North-Eastern Railway Company	H. Copperthwaite, Engineer's Offices, N.E. Railway, York.
" 29	London, E.C.—Workshop Machines	East Indian Railway Company	A. P. Donston, Secretary, Nicholas-lane, London, E.C.
" 30	Tetsworth—Water Purifier	Parish Council	H. J. Gibbons, Architect, Chesham, Bucks.
Oct. 2	Plymouth—Tramway Engineering Works (2 Contracts)	Corporation	J. H. Rider, Electrical Engineer, East-street, Plymouth.
" 4	Axbridge—Water Pipes	Union Rural District Council	A. Powell, 3, Unity-street, College-green, Bristol.
" 4	Lisburn and Clones—Steel Girder Bridges	Great Northern Railway Co., Ireland	Engineer-in-Chief, Amiens-street, Dublin.
" 6	Hipperholme, near Halifax—Water-tower, Tanks, &c.	Hipperholme Mills	M. Hall, 29, Northgate, Halifax.
" 7	Hull—Engines and Pumps	Corporation	F. J. Bancroft, Town Hall, Hull.
" 9	Ruthin, Denbigh—Steam Road-roller	County Council	E. B. Adams, District Surveyor, Denbigh.
" 11	Ramsgate—Gas-holder	Gas and Water Committee	Chairman of Committee, Hares-street, Ramsgate.
" 18	Nice—Steel Bridge over the Paillon	Corporation	Commercial Department of the Foreign Office.
Nov. 5	Hull—Electrical Equipment of Tramways		A. E. White, City Engineer, Town Hall, Hull.
No date.	Galway—Steel Joists, Iron Roof, &c.		J. Costello, Contractor, Sea-road, Galway.
"	Leeds—Sinking and Boring Well	Yorkshire Pure Ice Company	W. S. Braithwaite, 6, South-parade, Leeds.
"	Manchester—Sinking Shaft		— Bramall, Pendlebury Colliery, near Manchester.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—Continued.			
No date.	Selby—Sinking Well	Yorkshire Bacon Curing Company	E. Townsend, 1, Abbey-place, Selby.
"	Crossgates—Electric Bells .....	.....	Stevenson and Murgatroyd, Builders, Crossgates.
"	Great Yarmouth—Twelve Revolving Observation Towers .....	.....	Revolving Observation Tower (Parent) Syndicate, Yarmouth.
"	Harrington—Sinking and Walling Well .....	.....	A. Kendall, Harrington.
"	Preston—Rebuilding Weir .....	.....	Isherwood and Weir, Samlesbury Paper Mill, near Preston.
FURNITURE AND FITTINGS—			
Sept. 24	Hull—Two Cottage Houses	Guardians	W. Jackson, Lincoln's-inn-buildings, Bowalley-lane, Hull.
" 28	Darenth, nr. Dartford, Kent—Gore Farm Fever Hospital	Metropolitan Asylums Board	T. D. Mann, Norfolk House, Norfolk-street, Strand, W.C.
" 28	West Ham—Chairs to Town Hall	Town Council	L. Angell, Town Hall, Stratford, E.
" 28	Chester-le-Street—Workhouse Infirmary	Board of Guardians	R. Dickinson, Union Offices, Chester-le-Street.
IRON AND STEEL—			
Sept. 27	Frome—Cast-iron Spigot and Socket Water Pipes	Urban District Council	P. Edinger, Engineer, Public Offices, Frome.
" 28	Glasgow—Stores	Corporation	Manager of Gas Office, 45, John-street, Glasgow.
" 28	Waterford—Steel Rails, &c.	Waterford, Limerick, & Western Rly. Co.	J. Tighe, Company's Engineer, Waterford.
" 29	Christiania—Railway Plates and Dogs	Norwegian State Rly. Administration	Styrelsen Expeditjonskontor, Statsbanerne, Christiania.
Oct. 4	Axbridge—Cast-iron Socket Pipes	Rural District Council	A. Powell, 3, Unity-street, Bristol.
" 5	London—Wrought Iron Hurdles	London County Council	Parks Departments, Spring-gardens, S.W.
PAINTING AND PLUMBING—			
Sept. 25	Leeds—Decoration	Guardians	T. B. Wilson, 12, East-parade, Leeds.
" 25	Maidstone—Painting, &c., Police Court	Town Council	Borough Surveyor, Maidstone.
" 27	Portrane, Ireland—Plumbing Work and Heating	Lunatic Asylum Commissioners	G. C. Ashlin, 7, Dawson-street, Dublin.
No date.	Dewsbury—Painting to Sixteen Houses .....	.....	J. C. Thornes, 1, Ashworth-terrace, Dewsbury.
"	Turin, Italy—Lead, Tin, Copper, &c. ....	.....	Royal Foundry, Turin.
"	Keighley—Painting Eight Houses .....	.....	R. Tomlinson, builder, Keighley.
"	Northallerton—Painting .....	.....	W. R. West, solicitor, Thirsk.
ROADS—			
Sept. 24	Leeds—Headstones and Kerbs for Cemeteries	Corporation	City Engineer, Leeds.
" 24	Hull—Street Works	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 25	Ramsbottom, Lancs.—Materials	Urban District Council	Inspector of Nuisances, Market-place, Ramsbottom.
" 27	Hoyle, Cheshire—Materials (Two Contracts)	Urban District Council	T. Foster, Surveyor, Public Offices, Hoyle.
" 27	St. Anne's-on-Sea, Lancs.—Road Works	Urban District Council	Surveyor, District Council Offices, Park-rd., St. Anne's-on-Sea
" 28	Edmonton—Broken Granite	Urban District Council	G. E. Eachus, Town Hall, Edmonton.
" 28	Thames Ditton—Guernsey or Quevast Broken Granite	Urban District Council	Council Offices, Portsmouth-road, Thames Ditton.
" 29	Erdington, near Birmingham—Levelling, Paving, &c.	Urban District Council	H. H. Humphries, Surveyor, Public Hall, Erdington.
" 29	Blackburn—Paving, &c.	Corporation	C. Brownridge, Town Hall, Birkenhead.
" 29	Merthyr Tydfil—Limestone	Rural District Council	W. Beavon, Highway Surveyor, Deri, via Cardiff.
" 29	Fulham, S.W.—Road Works	Vestry	C. Botterill, Town Hall, Walham Green, S.W.
Oct. 1	Hull—Wood Paving Blocks	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 2	Middlesbrough—Paving	Streets Committee	F. Baker, Borough Engineer, Municipal Bldgs., Middlesbrough.
" 4	Rawmarsh—Street Works	Urban District Council	J. W. Bellamy, Clerk, Council's Offices, Rawmarsh.
" 6	Herne Bay, Kent—Norway Granite Channelling	Urban District Council	Surveyor, High-street, Herne Bay.
No date.	London, S.E.—Screening and Breaking Flints .....	.....	43, Silverdale, Sydenham, S.E.
"	Manchester—Flags	Corporation	Chief Clerk, Highways Office, Town Hall, Manchester.
SANITARY—			
Sept. 24	Marsden, near Huddersfield—Sewers, Manholes, &c.	Urban District Council	Abbey and Hanson, 20, Ramsden-street, Huddersfield.
" 24	Osmaston, Derbyshire—Removal of Night Soil	Shardlow Rural District Council	J. W. Newbold, Clerk, Becket-street, Derby.
" 25	Ramsbottom, Lancs.—Removal of Night Soil, &c.	Urban District Council	Inspector of Nuisances, Market-place, Ramsbottom.
" 25	Gloucester—Sewers, &c.	Rural District Council	J. F. Trew, C.E., County Chambers, Gloucester.
" 25	Walsall—Sewer	Corporation	Borough Surveyor, Bridge-street, Walsall.
" 25	Blackrock, Ireland—Sewer	Township Commissioners	R. F. Heron, Town Hall, Blackrock, Dublin Co.
" 27	Consett, Durham—Pipe Sewer, Field Tiles, &c.	Urban District Council	Council's Offices, Parliament-street, Consett.
" 27	Rugby—Sewer Works	Urban District Council	D. G. Macdonald, Surveyor, Rugby.
" 27	Morley—Sewering, &c.	Corporation	M. H. Sykes, Borough Surveyor, Town Hall, Morley.
" 28	London—Alterations	Commissioners of Sewers	Guildhall, London, E.C.
" 28	Guildford—Surface-water Drain	Rural District Council	R. Dewhurst, Surveyor, Commercial-road, Guildford.
" 30	Moffram-in-Longendale—Removal of Refuse, &c.	Urban District Council	J. Slater, Inspector of Nuisances, Bank-street, Broadbottom.
Oct. 2	Douglas, Isle of Man—Sewers	Corporation	Stevenson and Burstall, 38, Parliament-street, Westminster.
" 4	Consett, Durham—Removal of Refuse	Urban District Council	T. W. Welford, Clerk, Parliament-street, Consett.
" 4	Southend-on-Sea—Sewers, and Pumping Station	Corporation	J. Mansergh, 5, Victoria-street, S.W.
" 5	Chislehurst, Sussex—Sewerage and Sewage Disposal	Rural District Council	Powell and Co., Lewes.
" 5	London—Lime for Outfall Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 5	Wallingford—Sewerage, &c., Works	Rural District Council	B. Latham, 13, Victoria-street, Westminster.
" 5	London—Proto-Sulphate of Iron	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 5	Chislehurst, Sussex—Sewage Pipes	Rural District Council	Powell and Co., Lewes.
" 5	Westminster—Sewerage Works	Vestry	G. R. W. Wheeler, Town Hall, Caxton-street, S.W.
" 6	Wrexham—Sewerage Works	Rural District Council	J. O. Bury, Clerk, 9, Temple-row, Wrexham.
No date.	Burnley—Draining .....	.....	H. Smith, 135, Leyland-road, Burnley.
"	Ashton-under-Lyne—Drainage Works, District Infirmary .....	.....	North-Eastern Sanitary Inspection Association, 9, Albert-street, Manchester.
TIMBER—			
Sept. 25	Carlisle—Creosoted Larch Rails, &c.	Rural District Council	Clerk, 25, Lowther-street, Carlisle.
No date.	Wakefield—Pitch Pine Head Gear .....	.....	Hemsworth Colliery, near Wakefield.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 24	Frinton-on-Sea, Essex—Designs for Board School .....	.....	Frinton School Board.
" 25	Blaenau Festiniog, Merioneth—Plans, &c., for County Police Buildings	£15 15s.	Standing Joint Committee.
" 30	Merthyr Tydfil—Plan for Second Floor to Infants' School	£10	Merthyr Tydfil School Board.
" 30	Skipton—Designs for Cottage Hospital	£15, £5	Cottage Hospital Committee.
" 30	Skegness—Clock Tower	£7 10s., £2 10s.	W. Pillsworth Hiley, Garfield House, Skegness.
Oct. 1	Lower Bebington, Cheshire—Sewerage Scheme	£50, £35, £20	Urban District Council.
" 1	Ludlow—Electric Lighting Scheme	£20	Corporation.
" 1	Morecambe—Plans, Estimates, &c., for Sewerage Scheme	£100	Urban District Council.
" 1	Shepton Mallet—Grammar School & Headmaster's House	£100	Governors.
" 8	Leeds—Designs for Meat Market and Abattoir	£100, £50, £25	Corporation.
" 13	Dorking—Plans for Infirmary	£15, £5	Guardians of Dorking Union.
" 20	Colne—Technical School, Free Library, and Public Hall	£50, £35	Corporation.
" 23	Wolverhampton—Free Library (selected architects) .....	.....	Town Clerk, Wolverhampton.
" 30	Uxbridge—Schemes for Sewerage and Sewage Disposal	{ £45 (if combined) £15 for Eastcote and £25 for Northwood (if separate schemes)	Rural District Council.
Nov. 20	Southend-on-Sea—Plans for Church	Not stated	St. Alban's Church Committee.
" 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
1896.			
Jan. 1	Newcastle-on-Tyne—Infirmary (Local)	(No First.) £150, £100, £50	Secretary, Building Committee, Newcastle.
Feb. 28	New York—Model Sun Dial in Plaster	500 dol., 250 dol.	Sec. National Sculp. Soc., 215, West 57th-street, New York.
No date.	Carlisle—Design for Board School	£20, £10	Carlisle School Board.
"	Brighton—Artisans' Dwellings (Local)	£75, £25	F. J. Tillstone, Town Clerk, Brighton.
"	Bexhill-on-Sea—Designs for Promenade Pier & Pavilion	Not stated	Bexhill Pier, Park, and Land Company, Limited.
"	Lichfield—Plans, &c., for Nursing Home and Invalids' Kitchen	£10, £5	Lichfield Nursing Home Building Committee.

THE HISTORY OF THE CHARTERHOUSE.

ONE admires the City Press for the manner in which it is constantly bringing before its readers the institutions and ancient monuments of the City of London. In a recent issue appears an article on the Charterhouse, extracts from which we append:—"In the early part of the sixteenth century the neighbourhood of Smithfield was the centre of that more commendable form of religious zeal which found expression in the establishment of monastic and religious houses. The Greyfriars or Franciscans of Newgate Street, the Priory St. Bartholomew, the Monastery of the Carthusians, and the Priory of the Knights of St. John form a string of celebrated foundations existing at that time. The history of the Charterhouse, as the Carthusian Monastery was commonly called, and the plot of ground upon which it stood is a very curious one, and but few people have any idea of the interesting historical memories bound up in grey stone buildings on the north side of Charterhouse Square, a spot which seems to be so far removed from the every day bustle of the great City in the centre of which it stands, a spot of peaceful repose. In the year of the plague the sanitary regulations were in a very rudimentary state, and with all the burial grounds full to overflowing, the dead bodies were buried in any possible spots. The Bishop of London, horrified at the idea of burial in unconsecrated ground, purchased three acres of land, called in those days "No man's land," and, enclosing it with a wall, placed it at the service of the poor people. In the following year Sir Walter de Manny purchased from the master and brethren of St. Bartholomew the piece of ground called "Spittle Croft," consisting of thirteen acres and a rod, which was situated next to "No man's land," and devoted it for the same purpose. This plot of ground now comprises Charterhouse-square, the site of the present Master's Court, the playground of Merchant Taylors' School, and some land in Goswell Road and Clerkenwell Road, built on within the last twenty-five years. Within this area some 50,000 persons were buried. A few words must be said of Sir Walter de Manny, who, at his own expense, provided this large burial ground. Although not an Englishman by birth, he entered the service of King Edward III. when he visited England in attendance on Philippa, who became Edward's wife. He was a brave, warlike man, and a courtier; and his deeds of valour in the service of King Edward are well known. But, like many a soldier in those days before the existence of peace societies, he considered his profession of arms in no way incompatible with the foundation of a religious house; and, in 1361, in conjunction with Michael de Northburgh, Bishop of London, he commenced to

BUILD A MONASTERY

on the site of the burial ground. Ten years later the monastery of twenty-four Carthusians was founded at the charge of Sir Walter de Manny, who also endowed it. The monastery, which was called "the House of the Salutation of the Mother of God," was a double monastery of the order of the Carthusians, an order founded, in 1084, by St. Bruno at Charteux. The order was a very strict one. No one was allowed to leave the monastery except the Prior and Procurator, and thus cut off from the world, the monks studied, contemplated, and attended to their many religious services in the chapel. The monasteries of Carthusian monks usually consisted of two cloisters, a large and a small one. In the case of the Charterhouse the large cloister occupied roughly the site of the present school playground, the chapel, which was consecrated in 1371, occupying a position in the centre of the south side. The monks' houses were twenty-five in number, and there were also in the great cloister the chapter house and laundry. The prior's abode was at the south-west corner, and close by were the refectory and the buildings contained in the little cloister, which occupied what is now the Master's Court. The great cloister has, of course, entirely disappeared, with the exception of

two doorways to cells, but some portions of the original chapel are still to be seen, whilst the ante-chapel dates back as far as 1509, and is a relic of the monastic occupation. The Gate House was nearly entirely rebuilt at the end of the seventeenth century, but the old gates are believed to be the same as hung there at the close of the monastic period. The Wash-house Court, too, a small quadrangle built partly of brick and partly of stone, the home of the lay brethren, dates back prior to 1537. The monks' cellar beneath the refectory also remains, and last, but not least, there is the large Guesten Hall of the monastery, a building dating back to the early part of the sixteenth century, a time when

EXTENSIVE ALTERATIONS

were made to the monastery. Sir Walter de Manny did not long survive the foundation of the monastery, for he died in London in 1371, and was buried with great solemnity in the chapel of his monastery. A finely-carved stone tomb was erected over his remains. About three years ago, when some repairs were being executed in the south wall of the registrar's house, a beautiful piece of tabernacle work discovered. The Rev. H. V. le Bas, the preacher of the Charterhouse, who has studied the history of the monastery, says: "The Arms in the right hand top corner are those of Sir Walter de Manny, who founded the Carthusian monastery here in 1371, and was buried in the chapel in the same year. It is beyond doubt that the stone formed part of the tomb erected to the memory of Sir Walter and Margaret his wife." The monastery flourished for more than a century and a half, and from time to time generous benefactors added to its endowment, until in 1537 its annual income was stated to be £642 4s. 6d. Although it can be safely assumed from the evidence of contemporary writers that the Charterhouse did not share in the somewhat general demoralisation which King Henry VIII. the excuse for suppressing them, the Charterhouse had, of course, to suffer with the rest; and, after three years' persecution of the Prior and monks, the monastery with its revenues was surrendered to the King on June 10, 1537. We now enter upon the

SECOND WELL-DEFINED PERIOD

in the history of the Charterhouse, when the monastery became a private house, the successive owners of which have left distinct traces in the neighbourhood. The site and buildings were in the first instance granted to Sir Edward North, who built himself a house, afterwards called Rutland House, on a site to the east of the chapel, now partly occupied by the house of the head master of Merchant Taylor's School and the porter's lodge. The great cloister, with its twenty-five small houses, was, of course, quite useless for the purpose of a nobleman's residence, and before long practically disappeared, whilst the large open space in the interior appears to have been converted into a garden. But the little cloister close by, which had been to a great extent rebuilt about 1509, with the fine Guesten hall, kitchens, and other offices, were easily converted to the purposes of a private residence. Sir Edward sold the Charterhouse to the Duke of Northumberland, who was beheaded in 1553, and the site reverted to the Crown, by whom it was again granted to Sir Edward North. In the year of her accession Queen Elizabeth held her court at the Charterhouse for five days, and the contrast between the gaieties of an Elizabethan Court and the solemnity of the monastery of but twenty years before must have been very striking. The Queen again paid Lord North a visit in 1561, when she stayed at the Charterhouse for four days. It will be remembered too, that King James also kept his Court at the Charterhouse on more than one occasion. Under these circumstances it is only natural to conclude that the monastic buildings had been converted into a commodious and comfortable mansion, although a later tenant, the Duke of Norfolk, seems to have made several important additions and alterations. A contemporary writer describes the Charterhouse as a "large

and goodly mansion, beautified with spacious Gardens, Walkes, Orchards, and other pleasures, and very aptly seated for wholesome ayre, and many other commodities." On the death of Lord North, in 1565, his son sold the Charterhouse to Thomas Howard, the fourth Duke of Norfolk, retaining only a small portion as his own residence on the east side of the chapel, now known as Rutland Place. The Duke seems to have taken a great interest in his purchase, and spent money freely on

IMPROVEMENTS.

The large Guesten hall of the monastery, which was converted into the banquetting hall of the mansion, was improved by the addition of the minstrels' gallery, and the gallery at the north end. The great fireplace in the hall, the great staircase, the library, the governors' room, and the arcade over which the terrace runs, were all built subsequent to the occupation of the monks, and most of these improvements may be set down to the Duke, whose initials T. N., with the date 1571, are to be seen in the hall. The unfortunate Duke was, however, implicated in treasonable plots with Mary Queen of Scots, and in 1572 suffered at the block for high treason. On his death the property passed to the Earl of Arundel, and then to the Earl of Suffolk, who entertained King James there in 1603. Eight years later the property was sold to Mr. Thomas Sutton, and the Charterhouse then entered upon its

THIRD AND LAST PHASE.

Mr. Thomas Sutton, the founder of the Charterhouse Hospital and School, was born in 1532 at Knaith, in Lincolnshire, and educated at Eton and St. John's College, Cambridge. His mother came of a good old Yorkshire family, whilst his father was Steward of the Courts to the city of Lincoln. Sutton was sent abroad to travel on the completion of his University career, and on the death of his father he entered the service of the Duke of Norfolk. Subsequently he became steward to the Earl of Warwick, whilst he was also at some time connected with the household of the Earl of Leicester. He was appointed by the Earl of Warwick the Deputy Master-General of the Ordnance, and took up his abode at Berwick. The constant border disturbances gave Sutton the opportunity of showing his "loyalty, valour, and wisdom," and, in 1569, he became Master-General of the Ordnance of the North for life. Various military operations were successfully undertaken during the next few years, and it was at this period that Sutton laid the foundation of his large fortune. It is a curious coincidence that Sir Walter de Manny, the founder of the monastery, was a man of war, and that Thomas Sutton, although he made his fortune in commerce, was also so closely connected with military operations, and was even in command of a battery at the siege of Edinburgh in 1573. Thus the two great institutions at the Charterhouse, which were essentially works of peace, were founded by men who were soldiers by profession. In 1594 Sutton executed a deed of gift for the foundation of what he termed a hospital at Hallingbury-Bouchiers, in Essex. This deed was, however, never carried into effect, although an Act of Parliament authorising its execution was obtained in 1609. What caused Sutton to

ABANDON THE SITE

at Hallingbury-Bouchiers is not known, but in 1611 he purchased the Charterhouse from the Earl of Suffolk, the second son of the Duke of Norfolk, to whose household he had formerly been attached. On June 22nd, 1611, letters patent were issued authorising Sutton to found and endow his Hospital and Free School within the Charterhouse. He had originally intended to preside over the hospital as its first master himself; but age and infirmity were creeping upon him, and he found it necessary to set his worldly affairs in order. In October the Rev. John Hutton was appointed the first master of the hospital, and a month later Sutton executed his will, a lengthy document, contained in twenty-three leaves, which concluded with the following clause: "All the rest of my goods, and chattels, and

debts, not before given and disposed, I give and bequeath to my intended hospital, to be employed on and about the same, according to the discretion of the feoffees of my said hospital, or the greater part of them." On December 12th, Thomas Sutton died at Hackney, at the age of seventy-nine, his body being embalmed and deposited in a vault in Christ Church, Newgate-street, and there it remained until the founder's tomb was completed in 1614, when the body was conveyed to its last resting place.

THE OBJECT OF THE INSTITUTION

founded by Thomas Sutton was twofold. In the first place, provision was to be made for the accommodation of eighty poor brethren, men in the decline of life who were in straitened circumstances. The second object was to provide food, clothing, and education for forty poor boys, who would otherwise lack a good education. But Thomas Sutton's commands were not to be carried out without a struggle, and various legal proceedings were instituted to set aside the will endowing the hospital. A long struggle took place, and in July, 1613, it terminated in favour of the charity. The governors met and proceeded to appoint the eighty pensioners, after declaring "that there should no rogues or common beggars be placed in the hospital, but such poor persons as could bring good testimony of their good behaviour and soundness in religion, and such as had been servants to the King's Majesty, either decrepid or old; captains either at sea or land; soldiers maimed or impotent; decayed merchants; men fallen into decay through shipwreck, casualty of fire, or such evil accident; those that had been captives under the Turks, &c." As already stated, John Hutton had been appointed by Sutton as the first Master of the Charterhouse. This office must not be confused with that of the schoolmaster, who was in charge of the poor scholars. The Master was the head of the whole institution, the other officials being the preacher, the reader, the organist, the schoolmaster, the usher, the registrar, the receiver, the auditor, and the physician. The management was in the hands of sixteen governors, appointed by Sutton, who had the power of filling up vacancies on the governing body. For nearly three hundred years these governors have been selected from the greatest people of the land—princes, nobles, archbishops, bishops, cabinet ministers, and judges. Sutton left no detailed scheme for the internal administration of the hospital, and the regulations under which it was and is governed were slowly evolved by the governors as the result of experience. As years passed by the school flourished and grew. In addition to the scholars on the foundation, other boys were admitted, and in 1872 the governors decided to

MOVE THE SCHOOL

to the country. A site was procured at Godalming, and the vacant site in Charterhouse Square was bought up by the Merchant Taylors' Company, who required more room for their rapidly increasing school, so long situated in Suffolk Lane. As a sanctuary against the powers of a hard and unkind world, the Charterhouse has afforded a refuge to many a victim of the mutability of fortune. Men of science and men of letters, often unrecognised by their generation, have passed their last years in the calm philosophic retirement of the Charterhouse. Among these may be mentioned Mr. Stephen Gray, a Fellow of the Royal Society, who was noted for his electrical experiments at a time when electricity as a force was scarcely recognised. Mr. Maddison Morton, the author of "Box and Cox," and hundreds of other short plays, ended his days as a "poor brother" of the Charterhouse; and quite recently the death was announced of another pensioner, Dr. Dawson, a man of considerable note in the photographic world. The Charterhouse itself has been considerably altered and added to in order to meet modern requirements. The entrance gate is some two hundred years old, but the gates themselves are believed to be the same as those which hung there at the time of the suppression of the monastery. The chapel was built in 1371

for the monks, and was altered by them in 1509. When Sutton's trustees took over the site in 1612, the chapel was again altered. Some portions of the

ORIGINAL WORK

are still left, and the ante-chapel dates from the beginning of the sixteenth century. The Great Hall also dates from about the same period, and the Monks' Refectory still exists. What is now known as the "Old Cloister," a red brick building running up to the present school, was no part of the monastery, and is a relic of the occupation of the Charterhouse by the Duke of Norfolk. The Washhouse Court, a small courtyard, built partly of brick and partly of stone, is one of the oldest portions of the building as it now stands. The chapel contains several interesting monuments. The founder's tomb is situated on the north wall at the east end. It consists of a huge monument, beneath which is a large vault containing, in addition to the body of Thomas Sutton, the remains of John Lawe, his executor; of Hooker, Beaumont, Bennett, and King, four of the earlier Masters of the Charterhouse; and also of Lord Ellenborough, an old Carthusian, who was, at his own request, buried there in 1818. On the south wall, opposite the founder's tomb, are the beautiful monument of Francis Beaumont, the fourth Master, who died in 1624; Chantry's monument of Lord Ellenborough; and Flaxman's memorial of Raine, who was schoolmaster at the beginning of the present century. On the western wall there is also a half effigy of John Lawe, who died 1614, and was buried in Sutton's tomb.

CHANDELIERS OF WROUGHT IRON.

DESIGNS for chandeliers and side brackets in wrought iron are countless, and they are especially commended for gas and electric lights in the hall, dining-room, or library. The beautiful ornamental leaf work that can be so artistically wrought from thin sheet iron is an acceptable embellishment to the oftentimes monotonous scroll work, and its judicious application to the necessary places lends a grace and freedom to many articles of ornament that would otherwise be harsh and unattractive. One of the chief charms of wrought iron chandeliers and brackets is the way the dull black combines with copper and brass, and with the most brilliant hues of deep ruby glass, topaz-coloured globes, blues and green of peacock brightness, and the old world green bottle glass, all gain in intensity from contrast with the ironwork. To keep the dead-finished wrought iron constantly fresh and clean, it is only necessary to rub it with a flannel cloth, on which a little crude oil has been poured. Only the pure crude oil or kerosene should be used, as other oils gum on the surface, and in a short time spoil the original finish. The occasional application of the oiled rag will keep the Berlin black finish in perfect condition. Where it is not possible to get into the small places with the rag, a stiff bristle brush can be lightly dipped in crude oil and worked into all the little nooks and corners. Iron work that must be re-blacked can be sent to the shops where that class of work is done, though sometimes a considerable expense can be saved by doing it at home. To prepare a good and lasting black, mix a little ivory-black paint, ground in oil, with turpentine, to the consistency of cream, and apply it to the iron with a soft brush in two or three successive thin coats. Another good black can be made by adding lamp-black to brass lacquer, and if too thick thinning it with alcohol. This, however, cannot be applied over a surface that has once been oiled, while the turpentine and ivory black may be repeatedly used, and every time it will dry with a dead-black finish.

The Gorton Urban District Council proposes to borrow a sum of £10,850 for a cemetery and £20,196 for works of private street improvement.

GLASGOW MAIN DRAINAGE.

THE City Engineer, Mr. A. B. McDonald, has prepared an elaborate and interesting Memorandum, for the use of the Corporation, giving the history of the sewage system of Glasgow. From that part of the statement dealing with the important projects for completing the treatment of the sewage in such a manner as to secure the purification of the Clyde we take the following:—The Dalmarnock Works have been in successful operation for three years, with results that compare favourably with any that have been obtained in this or any other country. The area to be drained eventually into the Dalmarnock Works is 3465 acres, with a present population of 252,000. It is estimated that ultimately, when all the sewer connections are made, the quantity of sewage passing through the works daily will be 17 million gallons. The unquestionable success of the treatment of the sewage at Dalmarnock removed all the uncertainty regarding chemical methods, which caused the Town Council to hesitate acting on the advice of Mr. Bateman in 1881, and the Corporation resolved, in the autumn of 1895, by a large majority, to proceed with the works necessary for the collection and disposal of the remainder of the sewage of the northern bank of the river, and instructed the preparation of a bill to obtain the requisite authority from Parliament. Great physical changes had meanwhile taken place within and beyond the city since the date of Mr. Bateman's report, so that it was impossible to adhere to the precise lines recommended by him in the third section above quoted as preferred by the Town Council.

THE SCHEME HAD TO BE DEVIATED

to accommodate itself to local circumstances, but as far as possible the main features were preserved. The scheme included in the bill dealt with the sewage of the remaining municipal area not included in the Dalmarnock undertaking on the north bank of the river, with the burgh of Partick, the districts of Temple, Knightswood, Jordanhill, Scotstounhill, and Yoker, with landward parts of the county of Renfrew, and of the county of Dumbarton, and with the burgh of Clydebank. The whole area included is 7575 acres, which may be increased if the different authorities interested are agreed. The probable ultimate population of the area is estimated as 676,600 persons. The leading features of the scheme are the construction of an outfall sewer which will convey the drainage of the higher levels of Glasgow and Partick to Dalmuir, where it will be chemically treated at the works, which are to be constructed there on the lands acquired for that purpose by the Corporation; the construction of an intercepting sewer for collecting the drainage of the lower levels of the city; the construction of an intercepting sewer to collect the drainage of the lower levels of the burgh of Partick, which, by a westward extension to Blawart Hill, may be made the means of draining also that part of the county of Renfrew, extending to 392 acres, which does not gravitate to the outfall sewer; a connecting sewer to deliver the sewage of the Glasgow and Partick intercepting sewers into the outfall sewer from the pumping station at the river Kelvin; an intercepting sewer which will convey to Dalmuir the drainage of the burgh of Clydebank, and which, by an eastward extension to the neighbourhood of Blawart Hill, may be made the means of draining also flat part of the county of Renfrew and of the county of Dumbarton, extending to 1084 acres.

THE TOTAL AREA TO BE DRAINED

by the outfall sewer is 6759 acres, which may be increased by arrangement to 7151 acres; of this latter area, 5521 acres, or 77 per cent. of the whole, will be carried to Dalmuir without pumping. The whole sewage carried by the outfall sewer will be delivered at such a height above tide level as will enable it to be discharged at once into the precipitation tanks. Great importance is attached to this circumstance, which is regarded as a dominant principle of the scheme. The whole length of the outfall sewer is nine miles, two and a quarter

miles being within the city, two miles within the burgh of Partick, two miles in the county of Renfrew, and the remainder in the burgh of Clydebank and county of Dumbarton. The dimensions of the outfall sewer, from its commencement until it reaches the Partick pumping station, vary from the capacity of a circle 3ft. in diameter to that of a circle 7ft. in diameter. The inclination at different parts of its course is 1 in 295, 1 in 793, and 1 in 2640. The area drained is 3706 acres, with an ultimate population estimated at 370,600. The estimated daily flow of sewage, calculating the population at 100 persons per acre, and allowing 50 gallons per inhabitant, is 18½ million gallons. Twenty-one million gallons additional are computed as the amount represented by a rainfall of one-quarter of an inch daily. The combined quantity of 39½ million gallons will pass through the sewer without charging more than two-thirds of its capacity, even assuming that 70 per cent. of the volume of sewage runs through in twelve hours. The connecting sewer will deliver to the outfall the

DRAINAGE OF THE LOWER LEVELS

of the city and of the burgh of Partick, together with 80 acres of Renfrewshire territory, being an area of 1238 acres, with an ultimate population computed at 123,800, estimated at a daily delivery of six and a half million gallons of sewage and seven and a half million gallons of rainfall. To convey this additional quantity of fourteen million gallons, the dimensions of the outfall sewer are increased to the area of a circle 8ft. in diameter. In the course of its westward flow to the outfall at Dalnair, six miles and three-quarters distant, the capacity of the sewer is increased to the area of a circle 9ft. in diameter. The augmented capacity, from 7ft. to 8ft. and 9ft. in diameter, will enable it to receive the sewage and rainfall of the higher levels of Partick, of the area drained by the Whiteinch Burn, the Yokermains Burn, and part of the undeveloped territory of the county of Renfrew. If arrangements are made with the authorities interested, the sewage of the residential district of Bearsden, and of intervening landward parts of the county of Dumbarton, may also be included. The inclination of the outfall sewer between the connecting sewer and the Dalnair Sewage Works will be 1 in 2062 for a distance of five and a half miles, and 1 in 2810 for the remaining distance of one and a quarter miles. The mean velocity of the flow will be three miles per hour, so that the whole volume of sewage will pass from the Partick Pumping Station to Dalnair in two hours and a quarter. There will thus be no possibility of the generation of noxious gases, or the emanation of offensive or injurious odours. The Parliamentary estimate was £600,000, made up of £450,000 for sewers and sewer connections, sewage works, works on the river bank at Dalnair, pumping stations at Partick and Clydebank, and an allowance for contingencies. £150,000 was provided for land and wayleaves. It being deemed expedient to conjoin this undertaking with the Dalnair Sewage Works, the borrowing powers were fixed at £700,000 to incorporate the existing debt. When the Sewage Bill was in Committee, an assurance was given that the

DRAINAGE OF THE SOUTHERN DISTRICTS

of the city would be considered within a short period, and that diligence would be exercised in the preparation of a scheme for submission to Parliament. In implement of that undertaking a Special Committee of the Corporation has had the matter under consideration, and, after discussing various proposals, has agreed on a plan whereby the municipal area on the south bank of the river, as well as certain of the territories occupied by other local authorities, may be completely drained by two systems of main sewers adapted to the separate levels of the low-lying areas adjoining the river and the higher lands situated further south. The proportion of drainage which may be conveyed westward to the works without pumping is nearly equal to that which, derived from lower levels, will require to be

pumped. The leading features of this scheme are now sufficiently elaborated to enable the Corporation to enter on negotiations with the local authorities whose co-operation it is desirable to ensure, and it is intended to meet with some of them on an early day. The prosperous issue of these conferences opens up the vista in a not distant future of a complete solution of the great problem that has engrossed the public mind and baffled the ambition of municipal leaders for nearly half a century.

GLASGOW NEW ART GALLERIES.

THE story of the origin of the Glasgow Art Galleries and Museum, Kelvingrove, is an interesting one. The building, which will be the finest of its kind in Scotland, was the outcome of the Glasgow International Exhibition of 1888. The promoters of that Exhibition had in view the application of any surplus to the foundation of a permanent Art collection and museum, and as there was a very handsome amount left after the expenses of the Exhibition had been defrayed, the most sanguine anticipations were realised. It was decided to erect a suitable picture gallery and museum; to provide a hall for musical performances, and to make provision for a school of Art. An open competition for designs resulted in the selection of six plans and elevations, and from these the executive, under the advice of Mr. Waterhouse, R.A., finally decided upon the design shown by Messrs. J. W. Simpson and Milner Allen. The estimated cost was £155,000. The work was begun in 1893, and has been in progress since that time. Various modifications in the plans had increased the probable cost to £200,000, and the administration of the whole affair was finally taken over by the Town Council. The main front of the building faces the north, and looks towards the University at Gilmohill. The block of buildings is 400ft. in length by 200ft. deep, and occupies an area of about 9000 square yards.

THE FRONTAGE

extends east and west, and the principal apartment is the Grand Hall, which runs north and south, and measures 125ft. by 58ft., with a lofty, coved roof. The exterior roof of this hall is shown between the two towers, which rise to 150ft., and face Kelvingrove Park. The access to the main entrance is provided by a spacious double staircase, leading to a splendid porch surmounted by a tower. The principal carriage entrance is on the south side of the building, and handsome vestibules are placed within the structure at both entrances. In the plan of the building the Grand Hall has been made the central point, and from it are the East Court and West Court, at right angles to the hall, each being 105ft. by 64ft. These courts are surrounded by suites of picture galleries and museum galleries, and these are so arranged that one part of the building may be used quite independently of the other, having separate entrances and exits. The exterior is faced with stonework, but the interior is built of brick, and the whole structure is fireproof. The interior walls of the museum galleries are plastered, without decoration, while the picture galleries are lined with wood for convenience in fixing pictures. The floors are chiefly of granolithic pavement. The two main galleries in the wings measure 94ft. 6in. by 37ft., and the four galleries on the north and south sides of the two courts measure 93ft. by 38ft. The four pavilions at the corners of the building are each 35ft. square, and are intended principally for water colours. An ingenious arrangement is used here for lighting the walls. The centre of the roof has a ceiling, but there are marginal ceiling lights whereby the light is thrown directly on the pictures, without any cross reflection. In addition to the pavilions there are four cabinet galleries 14ft. square. There will be altogether six large galleries specially designed for the exhibition of pictures, besides the four pavilions and four cabinets. The general style of the architecture is Jacobean, the details being a free adaptation of Renaissance decoration.

DOUGLAS TOWN HALL.

IT will be remembered in the recent competition, open to all architects, the design of Mr. Arthur Ardron, of Westminster, was accepted, and tenders obtained. The tender of Messrs. Gradwell, contractors, of Barrow-in-Furness, at £10,368, has been accepted, and it may be interesting to give a few particulars of the general arrangement of the new buildings. Three distinct groups are provided, namely—municipal buildings, free library, and fire station. The first-named is placed at the corner of Ridgeway Street and John Street, and the free library occupies the remainder of the Ridgeway Street frontage, and has also a frontage to Church Street. The fire station is placed at the corner of John Street and Church Street. The principal entrance to the public office is from John Street, through a vestibule panelled in stone, with arched ribbed stone ceiling. The Town Clerk's department is placed next Ridgeway Street, and the Borough Surveyor's next John Street; the principal staircase, of Portland stone with wrought-iron balustrading, together with lavatories for the staff, are arranged centrally for each department. On the first floor is the Council Chamber, approached from the main corridor, with three large committee rooms and waiting rooms, as well as spacious lavatory and cloak room accommodation for Councillors. The Council Chamber, which is divided into three bays by pilasters, has a panelled wood dado, and has an elliptical arched ceiling, ribbed and architecturally treated in ornamental plaster work. At one end is a small gallery for the use of the general public, approached by a separate entrance and staircase from Church Street. On the second floor, over the committee rooms, are the caretaker's quarters, also with its own entrance from Church Street. In the basement are provided heating chambers, strong rooms, coal stores, &c. The Free Library will be entered from Ridgeway Street, and has the news room and lending department on the ground floor—the former top-lighted in addition to windows facing South Street. A lavatory for staff is also provided on this floor. The reference room is on the first floor, over the lending library, with librarian's private room, &c. Galleries are provided in the lending and reference rooms for the storage of books, while further storage room is provided in the basement, with lift communication. The Fire Station contains engine room, opening into Church Street, with folding doors, with a large assembly room above. A hose room, with tower for drying purposes, is also provided. The design of the building is Italian Renaissance, somewhat freely treated, and, while simple and dignified in effect, it is characteristic and suitable for municipal purposes. The walls facing Ridgeway Street and John Street will be built in local stone, with Monk's Park Bath stone dressings; while the elevation next Church Street will be carried out in brick. The whole of the roof will be covered with Broseley tiles. The building throughout will be heated on the low-pressure system by means of ventilating radiators and heating pipes, the Free Library having a separate service from the public offices. The floors have been constructed on fireproof principles, and an efficient service of hydrants has also been provided. The buildings will be commenced at once, and it is intended to have them completed in eighteen months from the present time.

An oil painting, representing a Biblical subject, fully believed to be a genuine Murillo, and thought to have been stolen from a convent at San Sebastian, has been discovered in Copenhagen. Its value is estimated to be £25,000.

The fine old parish church of Pentridge, Dorset, which stands on the site of the original edifice, dating back to 775, has just been re-opened after restoration. The restoration is of an effective character. The patronage of this ancient church was formerly vested in one of the great religious houses, Glastonbury or Tewkesbury, but has now fallen into the hands of the Crown.

Professional Items.

ABERDEEN.—The Plans Committee of the Town Council has passed the following plans of new buildings in the city:—Three dwelling-houses on the south side of Urquhart Road, for Mr. James King, builder, per Mr. William Smith, architect; dwelling-house on the east side of Holburn Street, for Mr. James Watson, tailor, per Mr. R. C. Garden, architect; two dwelling-houses on the south side of Great Northern Road, for Mr. G. Godsmen, Orchard Street, per Mr. William Ruxton, architect; wood-waste factory at Stells Road, for John Fleming and Co., Limited, per Mr. Alexander Mavor, architect; three dwelling-houses on the north side of Mid Stocket Road, for Mr. Arthur C. Bruce, architect, per Messrs William Henderson and Son, architects; two shops on the west side of King Street, for Mr. James Milne, cycle manufacturer, per Mr. John Gordon, Catherine Street; dwelling-house on the south side of Great Northern Road, for Mr. James Allan, Torry, per Mr. James Brown, builder (amended plan); alterations at No. 343 Union Street, for the City Property Association of Aberdeen, Limited, per Mr. R. G. Wilson, architect; four dwelling-houses on the south-west side of Hammerfield Avenue, for Mr. William Murray, builder.

BRADFORD.—For a long time past the stone and building trades of Bradford have made the New Inn, Tyrel Street, their rendezvous for various business purposes. The day on which most transactions have been effected has been Thursday, and this has been the place and date of what may be called the weekly Bradford Building Exchange. During the last month or two the leading members of the two trades have decided upon a somewhat important new venture. The upper two stories of the building opposite the New Inn, occupied principally by Mr. Cheetham, coach-builder, have been taken for the purpose of a new Stone and Building Exchange. Desks will be provided for the firms paying regular monthly accounts, and the premises will be generally adapted for the conduct of ordinary business.

A proposal will be made in the Bradford City Council that an Art Gallery and Museum should be erected on Corporation land adjoining Rawson Square. Rawson Place Meat Market is to be extended, principally for the purpose of providing premises for refrigerating operations. The bill gives the Corporation power to compulsorily purchase such shops in Rawson Place on the market side which do not belong to them, while Mr. M. O'Flynn has for some weeks turned his attention as a builder to the question of Bradford having an Art Gallery at reasonable cost. He has now a plan which has been prepared in detail by a well-known architect, and which provides for the utilisation of the Rawson Place site—already practically in the possession of the Corporation. Mr. O'Flynn's plan includes a handsome tower entrance from Rawson Square, and gives to the Art Gallery an area of 15,300 superficial feet, which would be considerably larger than the area of the Birmingham Art Gallery premises, and about three times the area of the Art Gallery premises in Darley Street. Mr. O'Flynn claims that by his project the Bradford Corporation could have a handsome Art Gallery, well lighted, on a site of its own, and in a very central position, for about £10,000.

BIRDFORTH.—Birdforth Church, which dates back to the fifteenth century, and was originally built as a wayside chapel, situated about five miles to the south of Thirsk, has been restored. The original building was of brick, surrounded at the western end by a turret, on which was placed an old wooden structure similar to the one which graced the old church at Scawton, on the Hambleton Plain. The old building has been re-roofed with French tiles, and the old pigeon-cote turret has been rebuilt with clamp bricks. The interior has been refloored and resealed, and the windows throughout reglazed.

CARDIFF.—The Corporation has commenced the construction of underground lavatories on the London style on the triangular piece of ground south of the public library in the Hayes. It is intended to construct others in various parts of the town, but the sites have not yet been selected.

DEWSBURY.—Colonel W. R. Slacke, inspector of the Local Government Board, heard evidence at the Dewsbury Town Hall, last week, with respect to an application made by the Corporation for permission to borrow the following sums:—£10,500 for laying out Crow Nest Park; £3141 for street improvements; and £260 for a steam roller. The schemes were opposed, chiefly on the ground that the outlay was not required.

DUMFRIES.—A new Academy was opened on Friday, Sept. 3rd, by Sir Robert Reid, M.P. The building consists of a massive portico, surmounted by a stone dome, supported at the angles by winged lions and crowned by a figure emblematical of Learning. A course of ornamental panels is carried along under the first-floor windows representing Commerce, Architecture, Plenty, Art, Science, Astronomy, and Justice. The contractors were:—Mason work, Messrs. Houston and Robinson; joiner work, Mr. Samuel McLauchlan; plumber work, Messrs. P. Drummond and Son; painter work, Messrs. W. Haming and Son; plaster work, Mr. Richard Moffat, all of Dumfries; and slater work, Mr. Robert Milligan, Dalbeattie. The carving, which is a feature of the building, was executed by Mr. James H. Douglas, Carlisle. The building will cost about £15,000, the architect being Mr. F. J. C. Carruthers, Dumfries.

DUNDEE.—An important discovery of antiquarian relics has just been made in the neighbourhood of Dundee. A number of workmen engaged upon the property of Mr. David S. Cowans, West Mains of Auchterhouse, came upon a stone cist at a short distance beneath the surface. Further investigations resulted in the discovery of a second stone cist. Both coffins were in excellent condition, and contained burned ashes, while in one of them was found a fine specimen of a bronze dagger about 6in. in length.

EDGECASTON.—The foundation-stone of the new Church of St. Ambrose, Pershore Road, has just been laid. The site, at the corner of Pershore and Raglan Roads, has been given by Lord Calthorpe, and upon this is to be erected a building which will cost between £6000 and £7000. The designs, prepared by Mr. J. A. Chatwin, architect, show a church of red brick, with terra-cotta dressings upon the outside, and Bath stone dressings in the interior. The building will consist of a nave 90ft. long, with a chancel 36ft. long; north and south aisles, shallow north and south transepts, a choir vestry, with organ chamber over, clergy vestry, and an apsidal projection at the west end forming a baptistry. There is also to be a tower and spire at the north-west corner, and a south porch; but only a portion of the tower will be erected in the first instance. The spire, when completed, is also intended to be of terra-cotta, and will rise to a height of about 150ft. The architectural style is Gothic, with flamboyant tracery to the windows. The floor of the church under the seats will be of wood, while the passages will be paved with Ruabon quarries. The church will accommodate 708 adults. The walls will be faced with bricks from the Coalville Brick Company, Leicestershire, and the terra-cotta will be made by Messrs. King and Son, of Cradley. Messrs. Collins and Godfrey, of Tewkesbury, are the builders.

HANLEY.—A large brick oven some 60ft. high, at the manufactory of Messrs. Thomas Fenton and Sons, at Hanley, fell the other day, carrying with it the roofs of the adjoining warehouses. The accident is attributed to mining operations.

LIVERPOOL.—Three shields of stone have been let into the front of the building in Sir

Thomas Street, which is henceforward to be the home of the administrative department of the School Board of Liverpool. On one of these is carved the name of Bushell, on another that of Rathbone, and on the third that of Lester. This lasting form of tribute to three earnest educationists is a happy inspiration of the architect.

A gang of men in the employ of Messrs. Dick, Kerr, and Company, contractors, Leadenhall Street, London, whilst working in Canning Place, on Wednesday, laying down wires for the National Telephone Company, came upon some massive stonework 6ft. below the surface. This, there is every reason to suppose, was part of the wall of the old dock, on the site of which the Custom House now stands. The dock was constructed in 1700, and pulled up in 1826. Not having sufficient power to raise the masonry, the foreman was compelled to break it up, as it was obstructing the excavations. Each stone was found to be 7ft. long and 4ft. in width, and weighs about 5 tons.

LONDON, W.C.—A statement with regard to the proposed restoration of St. Clement Danes was made at a recent meeting of the parishioners. The Rector said that he was glad to have to announce that their historic church would soon be in the hands of the restorer, as a result of the Jubilee. The stands erected around the church in June realised £5750. Legally he was entitled to the whole of the money, but he decided to give it for the purposes of the complete restoration of both the exterior and interior of the church. The scheme of restoration and improvement would include the repairing and redecoration of the interior, introducing an electric light installation, repairing and restoring the organ, restoring the altar (which, though now covered with stained wood, had been found to be composed of costly carved marble), and the restoration of a chest in which the deeds of the church were deposited hundreds of years ago. These were only a few of the details of the scheme, but they were sufficient to show that, without interfering with its antiquity or historic interest—for many notable persons had worshipped within its walls—the church would be fully restored.

NEW HALL.—The interior of the large chapel at the Convent has just undergone renovation. The decoration has been carried out by Messrs. W. Bishop and Co., of Duke Street, Grosvenor Square. The chapel was a banqueting hall at the time of its erection in the reign of Henry VIII. The style of the carving on the three centre pieces set in the ceiling really belongs to the Georgian period, dating from a previous renovation, and the present embellishments have been carried out to harmonise, but most of the other existing decoration has been carried out since the occupation of the building by the nuns, some hundred years ago. An old panel representing the royal coat-of-arms, which has been re-done with the nicest finish, presents a very fine example of carving of the Henry VIII. period. Four entirely new panels have been put in by Messrs. Bishop and Co., and contain designs from the Immaculate Conception after Murillo. The panellings are richly gilt and ornamented with hand-painted work. The cornice is kept to golden tints, with a very ornamental frieze on a gold background, relieved with vermilion. The frieze is all hand-painted work, as also the ceiling. The walls below the cornice both in the choir and the chapel are vermilion.

OWLERTON.—During the past two months Owlerton Parish Church has been closed, and during that time various alterations and additions have been made, which have materially improved the building. A handsome new pulpit has been erected. It is composed of Normanton stone and alabaster, with marble pillars. In addition, the interior of the edifice has been decorated, and the choir stalls have been enlarged. New heating apparatus has been placed in the chancel. The total cost of the improvements has been £300. Messrs. Johnson and Appleyards have carried out the

work of re-decoration, whilst Mr. Franklin, of Langsett Road, has done the work of enlarging the choir stalls, and the heating apparatus has been supplied by Mr. Wright, of Attercliffe.

PAISLEY.—Provost Mackenzie has fixed on a piece of ground on the Greenlaw estate to the west of Mansion House Road as a site for the new Eye Infirmary which he intends to build and give to the town. Sufficient ground is provided for future extensions when necessary. Mr. Charles Davidson, architect, has the plans in preparation, and the work is being pushed forward as quickly as possible.

RAMSGATE.—The proposed Wesleyan Chapel is now well in course of erection. It is designed in the Early Gothic style, and will consist of a nave, with chancel, organ chamber and two vestries. The front will have an outside porch, and over it a mullioned window with cusped tracery, and single light windows on each side of the porch. These are flanked with octagonal buttresses at the corners, which are run up and finish with pinnacles having carved finials. All the other windows have pointed heads, and the glazing throughout will be in cathedral tinted glass with lead quarries and margins. The roof is partially open with arched ribs and pitch pine ceiling. The pulpit and pews are also of pitch pine. The chapel is 50ft. long by 31ft. 6in. wide inside, and will seat 335 persons. The contract is in the hands of Mr. W. W. Martin, and the cost of the work is £1450. The architect is Mr. John Wills, of Derby.

SCARBOROUGH.—The sub-committee in charge of the marine drive operations round the Castle Hill at Scarborough has taken up the question as to approaches to the drive from the Foreshore Road. Notices are to be prepared giving the Corporation possession of the property on Sandside, which will be required to be pulled down or altered in order to allow of the construction of the approach, and the engineer has been ordered to prepare the necessary plans.

SHIELDMUIR.—The foundation-stone of the chancel arch column of the new Roman Catholic church at Shieldmuir, near Wishaw, was laid within the past few days. The church is designed in the Early Decorated style, and will consist of chancel, nave, side chapels, aisles, baptistry, sacristies, confessionals, &c. Red sandstone is being used in the construction, and the estimated cost is £6250, the designs being by Messrs. Pugin and Pugin, London.

SOUTH HACKNEY.—The new synagogue in Mare Street, South Hackney, was opened on the 19th inst. The buildings comprise, on the lower ground floor, a spacious hall convertible into nine class-rooms. The ground floor contains the main body of the synagogue, and the first floor is devoted to the ladies' galleries. The external design is carried out in red brick and artificial stone. The interior is painted in pure white, the woodwork being in imitation of old oak. The cost of the freehold site and of erecting the building, which was built from the designs of Mr. Delissa Joseph, amounted to about £8000.

YARMOUTH.—The foundation stone of the new church for St. Paul's district was laid a few days ago. The old wooden building is nearly pulled down, only a portion having been left standing to be utilised until the new church is fully completed. Messrs. Bottle and Olley are the architects, and Mr. W. Cork the builder. The nave will be 60ft. by 30ft., and the church, which will be of a gothic character, will be half timber with brick face.

The reconstructed North Bridge of Edinburgh has been opened by Lord Provost McDonald. The work has occupied two years, and, at a cost of £90,000, the old stone bridge has been replaced by a magnificent steel viaduct.

FEDERATION OF YORKSHIRE BUILDERS.

THE employers in the Yorkshire building trade are generally supporting the Federation which was formed just over a month ago, and the founders are sanguine that the organisation will be greatly developed in a very short time. Already many important associations have joined, and others are expected to follow the example set. It is anticipated that the new combination will strengthen the position of building trade employers throughout the country in many ways. With the object of further making known the objects of the Federation, a meeting was held on Friday last at the Royal Exchange, Leeds. Alderman Jessop (president) was in the chair. At the outset of the proceedings the Chairman explained the objects of the Federation, and afterwards an Executive Committee of fifteen was appointed to carry them out. An address was given by the Secretary of the Free Labour Association (Mr. Frederick Miller), and a resolution was adopted sympathising with the work which that agency has in view. The objects of the Building Employers' Federation are thus set out in the rules:—"To secure full discussion of, and, where practicable, the adoption of a common policy in regard to questions that may from time to time be raised affecting the trade; to defend the interests of its members against combinations of workmen seeking by strikes or other methods to impose restrictive conditions on the trade; to secure united action and provide mutual support in dealing with any attempt such combinations may make to impose unfair terms on individual employers or districts; to establish branches of the Association in towns and districts where they do not already exist; to generally guard the interests of the trade, and obtain fair and equitable treatment from architects in relation to quantities and conditions of contract; and to raise and maintain a common fund, to be applied and used in carrying out the objects in view." The rules further set forth: "The principles of the Federation being conciliatory to the operatives, it shall in all cases of dispute with them do its utmost, by arbitration or otherwise, to avoid strikes or lock-outs; but if the operatives refuse any equitable settlement of a dispute affecting any member of this Association, the matter shall be brought before the Executive Committee, and, if it decides that the member interested shall be supported, then each branch and every member thereof shall do their utmost to help to bring the dispute to a successful issue, and shall loyally adhere to such rules as may from time to time be passed with that purpose."

SOCIETY MEETINGS.

Essex Archaeological Society.—The members of the Essex Archaeological Society had a field day on Tuesday, the 17th inst. The first place visited was Elsenham Parish Church, the chancel of which is now undergoing repairs. A brief account of the history of the church and of its chief characteristics was given by Mr. G. Pritchard. From here the party drove on to Thaxted, stopping *en route* at Horham Hall, a famous Essex mansion, having a picturesque situation, and possessing many points of interest. It was here that Queen Elizabeth stayed for some time before she came to the throne, and she paid it a second visit after her accession. From here a move was made to Thaxted. Its parish church, which makes a good landmark for many miles around, is one of the finest and largest in the county.

Institute of Certified Carpenters.—The members of the Institute of Certified Carpenters visited St. Paul's on Saturday to inspect its architect's famous dome and roof. Mr. T. M. G. Lloyd, hon. sec., conducted the visitors, explaining at certain stages the principles involved in the construction. Comparisons were made between the fine proportions of Wren's work and those of the dome of St. Peter's at Rome and that of the Florence

Duomo, showing the English architect's rare scientific skill as well as his artistic insight. Visitors were enabled to follow the guide's elucidation in both the Stone gallery below and the Golden gallery above the vast graceful cupola. The location of the visitors in the last-named gallery gave them a fairly adequate notion of the magnificent panoramic view that can be obtained of London when the air is clear. Upwards of thirty of Wren's churches can be discerned in an eastward direction, the most striking being Bow Church, Cheapside, and St. Michael's, Cornhill. A visit was afterwards made to the crypt.

Enquiry Department.

THORNDON HALL, ESSEX.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you inform me who was the Architect of Thorndon Hall, Essex, a "Georgian" mansion, the seat of Lord Petre; and if there is any work containing plans of same? I believe there is a volume on houses of this description, but am ignorant of its title or author.—Yours faithfully, S. S.

Mr. John Belcher's forthcoming work on "Later Renaissance Architecture" will, we understand, contain a full description, together with plans of Thorndon Hall. Or, in the meantime, the plans may be seen in Gwilt's "Encyclopædia of Architecture," and particulars can very probably be unearthed at the South Kensington Museum Library.—Ed.

Correspondence.

OLD BUILDINGS IN DEVONSHIRE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—With much interest I read the article under the above heading in your journal of the 25th ult.

Many besides myself will no doubt have done so, and will equally with me deplore the "down with it" tendency that seems to be so general, even in old world districts so full of beauty in landscape and historic interest as those named in the above interesting article. For example, it is deplorable to think of the probable unnecessary destruction of such an interesting tower, all that remains of the St. Leonard's Chapel-of-Ease to the Parish Church of Wolborough in the days gone past, which stands in a unique position in the town of Newton Abbot, with four streets converging upon it, and containing as stated a musical peal of bells, and to this day, I believe, there continues the custom of ringing at night the "curfew" (surely those instances have already become few enough).

There would seem to be no adequate reason for destroying this old relic of a departed age in this pretty old market-town in Devonshire, nestling in a lovely valley between the hills of Wolborough and Highweek.

Much as all archaeologists would deplore its disappearance, in like measure would they be gratified to learn that upon reconsideration on the part of the authorities in the neighbourhood such a loss to antiquity might be averted. Yours faithfully,

"ST. LEONARD'S TOWER AND BELLS."
September 6th, 1897.

By order of the prison authorities, workmen are now engaged in removing the old gateway, formerly the principal entrance to the Kent county prison at Maidstone. Adjacent to this gateway was the cell in which prisoners condemned to death were incarcerated, and through the smaller opening they used to emerge and stand on the scaffold in view of the public assembled in the open square in front. The prison wall has been rebuilt on the inner side of the gateway, which would therefore be not only useless, but unsightly.

Trade and Craft.

JEDBURGH OLD BRIDGE.

A portion of one of the piers of the Old Bridge over the Jed at Canongate foot has been taken down in consequence of its having been in a dangerous state, and is being rebuilt. This bridge, which is believed to belong to the twelfth century, is said to have been built to afford the means of transit for the stones used in the erection of the abbey. The bridge is a strongly-built structure, with three ribbed arches, but for many years it has been used only for foot passengers.

LEEDS AND LIVERPOOL CANAL.

The report of the directors of the Leeds and Liverpool Canal Company for the first half of the present year states that the disbursements on capital account amount to £32,189, viz.: For land, works, and general improvements, £9725; working stock (boats, engines, horses, &c.), £3157; reconstruction of canal, £19,307. The amount expended on land and works includes an advantageous purchase of land opposite the entrance to the Liverpool docks, where space is urgently required for widening the canal; £1000 towards the new warehouse at Bradford, and various smaller items. The amount spent on the improvement of the canal has been about the same as in the second half of 1896, and includes very heavy work in Liverpool and Bootle, as well as the continued dredging and reconstruction of the banks near Wigan and in other portions of the canal.

A SINGULAR ROAD DISPUTE.

A rather extraordinary state of things has arisen at Round Oak, Staffordshire, owing to the refusal of the Great Western Railway Company to allow the passage over one of its bridges of a casting about 43 tons in weight, borne on a carriage which increases the load by about five tons. The casting comes from the dismantled works of the New British Iron Company, and was on its way by a somewhat circuitous route to the Old Level Ironworks. When the former works were sold under the hammer, the original purchaser of the casting sacrificed his purchase owing to the great difficulty of transporting such an enormous weight, and it was subsequently bought by the present owner for the purpose of being used at the Level Works. All went well with the transport of the casting till about a month ago, when it neared the railway bridge in question. The railway officials peremptorily declined to let it pass owing to the risk to the bridge that might be incurred, and they contended that it could not be said to come under the definition of the ordinary traffic of the district for which alone they have to provide bridges of sufficient strength. The contractors for the removal, however, hold that in an iron-making district it is the duty of the railway company to provide for the passage of weights as heavy as that referred to, though they may only rarely pass along the highway. The propping of the bridge while the casting passes would, it is understood, lead to some interruption of traffic. There was an idea among the railway officials that one night an attempt would be made to risk the passage of the bridge, and, to the surprise of the public, a trench was found cut across the road, but this was subsequently levelled again. Meanwhile the casting has to be specially guarded in order to avoid accidents. While the railway company refuses to let the casting pass over the bridge, the local authorities threaten proceedings for obstruction of the road. The deadlock has existed now for a month, and the subject is arousing much interest in the neighbourhood.

A NEW STEEL PROCESS.

It is well known that many of the failures of cast steel apparatus, often involving heavy loss of life, are due to what are called "flaws." Their detection in many cases is practically impossible. It therefore becomes a matter of

very great moment to devise some plan by which the occlusion of air can be absolutely prevented, and a new invention, patented by Mr. William Ellis-May, promises to do something towards this. In the Ellis-May process the castings are made in an air-tight chamber, from which the air is exhausted, the mould or casting being placed in the chamber before the exhaustion of the air. A series of other chambers surrounds this chamber, each connected with it by a pipe controlled by valves. In these chambers a reserve of vacuum is stored, the air from them being exhausted by powerful vacuum pumps. When a casting is ready to be run in, the controlling valves are opened, and the residue of air in the casting chamber is instantaneously sucked out into the surrounding chambers at the same moment that the molten steel is poured into the mould. The casting thus takes place *in vacuo*; the secluded air and gases rush out of the fluid metal and diffuse themselves in the vacuum chambers, and a flawless, homogeneous steel casting is the result. It is not too much to say that if the Ellis-May casting process proves a success on a commercial scale, it will tend to effect a revolution in the industry.

THE CENTRAL LONDON RAILWAY.

The first junction of the tunnels between Holland Park and Notting Hill Gate stations was successfully made on Saturday night last. The following junctions will be made before the end of the current year, viz., Shepherd's Bush station and Woodhouse Park (the generating station), Shepherd's Bush and Holland Park stations, and Queen's Road and Westbourne stations, and in February, 1898, the last junction of No. 1, 2, and 3 contracts will be made between Notting Hill Gate and Queen's Road stations.

A NEW IRISH RAILWAY.

An important railway project is about to be undertaken at Cork on behalf of the Cork Blackrock and Passage Railway Company. A Scottish contractor, Mr. Best, of Edinburgh, has been entrusted by the directors of the Company with the work of constructing a line of railway from Passage West to Crosshaven, a small seaside resort near the mouth of Cork Harbour. The distance of the proposed line is about twelve miles, and Mr. Best's tender at £82,000 has been accepted for the carrying out of the work, which will be begun forthwith.

LANDLORDS AND SANITARY INSPECTORS.

In the City of London Court last week, before Mr. Commissioner Kerr, Mr. Robert E. Clarke, builder, 16, Finsbury Pavement, E.C., sought to recover the sum of £10 2s. against the defendant, Mr. Frederick London, 170, Edmund Street, Birmingham, for work done at 85, Finsbury Pavement, of which the defendant was the landlord.—Mr. Harry Dade, for the plaintiff, explained that the defendant's London property was managed by Tillett and Yeoman, a firm of estate agents. The house in question had been empty, and it succeeded in letting it. The tenant wanted certain repairs done, which the plaintiff estimated would cost £85. The order was given him; and, indeed, the £85 had been paid by the defendant, as the landlord. But while the work was in progress the City of London sanitary inspector visited the house. That official ordered the plaintiff to do extra work, for which he now asked defendant to pay.—Mr. Aldous, for the defendant, urged that no liability could attach to the defendant for the extra work which he had never ordered to be done. What business had a builder to do work which the landlord had not instructed him to do?—Mr. Commissioner Kerr replied that if a sanitary inspector required work done a builder was bound to do it. Under the Sanitary Acts a landlord was liable for such work, although he did not give any order.—Mr. Aldous argued that the defendant, as the landlord of the property, should have been communicated with.—Mr. Commissioner Kerr said that if that had been done, and the defendant had not given the order, the sanitary inspector

would have taken him before a magistrate, who would have made an order. It was no use opposing sanitary inspectors when they wanted necessary work done. It was for the public benefit. There must be judgment for the plaintiff for the amount claimed, with costs.

At Kelloe parish church, in the county of Durham, a marble tablet has just been unveiled to the memory of Elizabeth Barrett Browning.

The facsimile of the old beacon which used to be regarded as a historic feature of the Beacon Hill summit, Halifax, has just been re-erected. The erection subsequently collapsed owing to the pole not being sufficiently substantial.

RAWCLIFFE HALL, the residence of Mr. Ralph Creyke, D.L., ex-High Sheriff of Yorkshire, has been partially destroyed by fire. The fire originated in the west end of the mansion—the more ancient half of the house, dating from the seventeenth century. Most of the contents of the lower rooms, including valuable Florentine furniture, priceless curios, and pictures by some of the most celebrated painters, were saved.

MR. HAMO THORNYCROFT's statue of Oliver Cromwell, destined to be set up at Westminster, is very nearly completed. It is characteristic and expressive, and represents the Protector standing with one hand upon the sword at his side, holding a Bible in the other. His head is bare, and his felt hat—which, of course, is of the shape affected by the Puritans of his time—is under his arm, while, as if lost in thought, he looks moodily down at the ground at his feet. The likeness of the face, derived largely from the death-mask, is strikingly faithful.

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KEYSTONES.

At Montreux, on the Lake of Geneva, a number of workmen have been killed by the collapse of a large building, intended for a lunatic asylum, which was in course of construction. Sixty men were at work at the time.

A SERIOUS fire recently occurred at Messrs. Trechmann and Co.'s cement works at Haling, near Rochester, resulting in the total destruction of the mill-house and machinery, together with many tons of cement. The damage is estimated at £6000.

A PORTION of Lord Carlisle's Manor Park estate at Hampton-on-Thames will shortly be offered for sale in lots suitable for the erection of superior villa residences. Another interesting estate that is to be put up to auction during next month is Hafod-y-Bryn, the seat of Mr. Samuel Pope, Q.C., in North Wales.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ANDENSHAW.—For rebuilding Liberal Club. Mr. J. H. Burton, architect, 2, Guide-lane, Hooley Hill:—
Wellerman Bros. £1,160 14 J. Ridyard £1,013 0
J. Whitehead 1,074 0 Exrs. of T. Storer 1,005 0
E. Kirkley 1,071 7 Z. Pike, Hooley
C. Evans 1,041 0 Hill (accepted) 990 0

BAKEWELL.—Accepted for the construction of precipitation tanks and about 1½ miles of stoneware pipe sewers, Stony Middleton, for the Rural District Council. Messrs. Sterling and Swann, engineers, Town Hall, Chapel-en-le Frith, via Stockport:—

T. A. Matthews, Buxton £1,257
BARNET (Herts).—For additions to the Victoria Cottage Hospital, for the Committee. Mr. C. P. Ayres, architect, 14A, High-street, Watford:—
W. James £1,984 0 M. Pearson £1,593 17
J. W. Pavey 1,859 0 J. Daniels 1,518 0
C. H. Hunt 1,663 0 W. Wade, St. Neots* 1,368 0
H. M. Dove 1,650 0 G. and J. Waterman 1,227 0
Turner, Ltd 1,597 0 W. B. Neal 1,150 0
* Accepted.

BELFAST.—For erecting two houses, Wellington Park, for the Rev. M. Beattie. Messrs. Forman and Aston, architects, Queen's-buildings, Royal-avenue, Belfast:—

H. Smyth £200 Young and Dickson,
Robinson 850 Pakenham-street* £230
*Accepted. [Three lowest tenders.]

BEXHILL.—Accepted for shops and dwelling houses in St. Leonard's-road, Bexhill, for Mr. H. W. Gillam. Mr. W. Cooper, architect, 21, Havelock-road, Hastings. Quantities by the architect:—

F. Cruttenden £1,100

BURTON-ON-THE-WATER.—For the erection of hall and reading-room. Messrs. Protheroe and Philcote, architects, Cheltenham:—

Bartlett Brothers £1,997 18 Hartwell and Sons £1,530 0
W. J. Bloxham 1,997 0 A. Clifford and Son 1,497 10
W. Barnes 1,580 0

CABRA.—Accepted for building play-halls at auxiliary workhouse, for Guardians of North Dublin Union:—

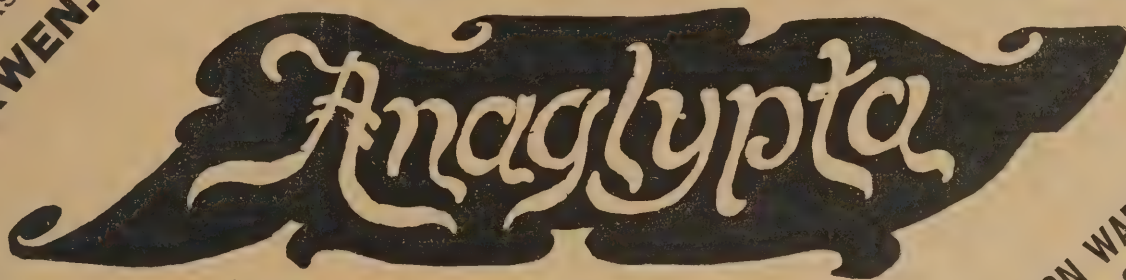
Henry Monks, Great Brunswick-street, Dublin. £259
[Two other tenders received.]

CHATHAM.—For rebuilding the "Alexandra Hotel," Chatham, for Messrs. Budden and Briggs, Limited. Mr. Boucher, architect, High-street, Rochester. Quantities by Mr. H. R. Messenge, Percy-villa, Seabrook, Kent:—

J. and M. Patrick £2,287 Seagar £2,742
Wyles 3,100 West Bros. 2,723
Phillips 2,500 Skinner, Railway-
Filley 2,754 street, Chatham* 2,661
Snow 2,745
* Accepted.

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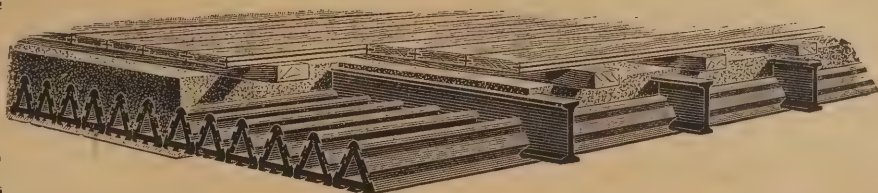


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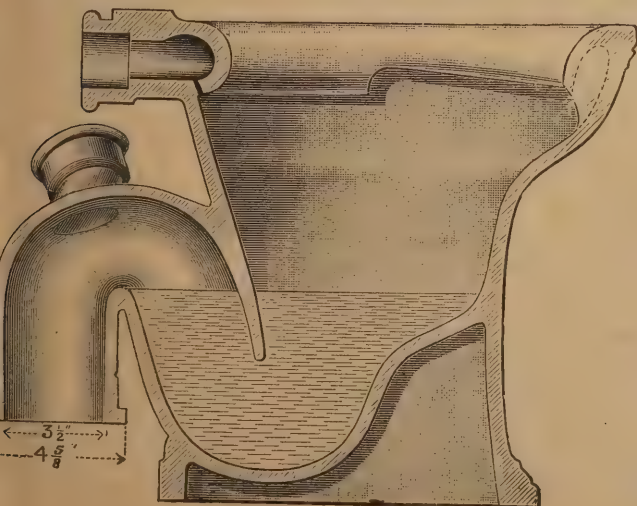
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DERBY.—For the erection of a parish hall and council room at Fazeley, near Tamworth, presented by Mr. James Eadie, of Barrow Hall, Derby. Messrs. Wright and Tomlinson, architects, Derby. Quantities by architects:—
Wm. Winstance ... £2,689 | Ford and Co. ... £2,175
Clarnson and Son ... 2,389 | R. Kershaw, Burton* ... 2,050

DOVER.—For additions to hospital, for the Hospital Committee. Messrs. Fry and Gardener, architects, Cannon-street, Dover. Quantities by architects:—
G. F. Keeler ... £381 17 | J. Parsons ... £611 10
G. Lewis and Sons ... 625 0 | Austen and Lewis* ... 597 0
W. Bromley ... 619 0 | *Accepted.
[All of Dover.]

EPSOM.—For making-up the Longfellow and Lincoln-roads, Cheam, for the Rural District Council. Mr. H. D. Searles, Wood, surveyor, 157, Wool Exchange, Coleman-street, E.C.4.
S. Kavanagh ... £2,068 10 6 | W. H. Wheeler ... £1,503 17 11
H. Benham & Co. ... 1,978 0 0 | W. Jenner ... 1,430 14 10
Lawrance and Thacker ... 1,676 2 8

EXETER.—For Jubilee drinking fountain. Mr. J. A. Andrews, architect, Exeter.
J. and E. Goad ... £1,851 0 | Harry Hems & Sons ... £1,000 0
W. Gibson ... 1,300 0 | C. J. Stocker ... 980 0
W. B. Berry ... 1,100 0 | J. Easton and Sons ... 766 5
Mitchell and Sons ... 1,025 0

HEBBURN.—For excavating, levelling, sewerage, macadamising, paving, channelling, cementing, &c., in St. Rollox-street, back St. Rollox-street, Glen-street, back Glen-street, Tennant-street, back Tennant-street, back Newton-villas, Elm-street, back Wood-street, street foot of Arthur, Frederick, and Harvey-streets, and back Hilda-terrace, for the Urban District Council. Mr. J. B. Renton, surveyor:—
W. D. Young ... £1,254 9 1 | T. Callaghan, Jarro* ... £1,234 18 7
*Accepted.

HEBBURN.—For erecting shedding, &c., Argyle-street, for the Urban District Council. Mr. J. B. Renton, surveyor:—
J. Musgrove ... £495 0 | Cowper & Henderson, Jarro* (accepted) ... £489 15
[Surveyors' estimate, £509 17 3.]

KNARESBOROUGH.—Accepted for erecting a detached house, for Mr. W. E. Goodyear. Mr. A. A. Gibson, architect, 8, Cambridge-crescent, Harrogate:—
Masonry.—S. Nestleton, Bilton, Harrogate
Carpentry and Joinery.—Clapham and Taylor, Harrogate
Plumbing and Glazing.—C. Benson, Knareborough ... £1,030 10
Plastering.—Coleman Brothers, Knareborough
Tiling.—W. Cassells, Knareborough
Painting.—W. Noddings, Harrogate

LLANBADARN.—For the erection of a school-room adjoining Independent Chapel, Llanbadarn. Mr. J. Hughes Williams, architect, Quebec-road, Llanbadarn Ferry:—
D. Williams, Aberyst. ... £350
Witt* ... £360 | *Accepted.

LLANDRINDOD WELLS.—For the erection of an hotel, for the Gwalla Hotel Company. Messrs. Swash and Bain, architects, Midland Bank-chambers, Newport:—
W. Bowers and Co. ... £8,840 | E. G. Groom ... £8,200
D. Lewis ... 8,642 | D. Jenkins, Beach-street, Swansea* ... 8,190
O. H. Reed ... 8,680
A. S. Morgan and Co. ... 8,690 | *Accepted.

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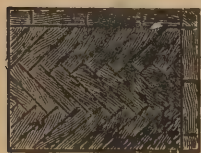
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LONDON.—For pulling down and rebuilding "The Star and Garter Hotel," Powis-street, Woolwich, and stabling in rear, for Mr. W. Chambers. Mr. John O. Cook, architect:—
Balaam Bros. ... £10,200 | Richardson ... £8,909
Smith and Sons ... 9,993 | Holloway ... 8,797
Lilley and Lilley ... 9,237 | Sanford ... 8,750
Kirk and Randall ... 9,157 | Proctor ... 8,678
Thomas and Edge ... 9,147

LONDON.—For pulling down and rebuilding premises, 76, Great Titchfield-street, W., for Mr. Joshua Thompson. Mr. Albert E. Pridmore, architect, 2, Broad-street-buildings. Quantities by Mr. R. J. Stamp:—
Watson Bros. ... £1,682 | W. J. Davenport ... £1,349
A. A. Webber ... 1,617 | W. Wiltshire ... 1,273
S. R. Lambie ... 1,557 | Herbert King* ... 1,248
Beer and Gash ... 1,443 | *Accepted.

LONDON.—For alterations to "Coronet" public house, Solihull-street, W., for Mrs. Lindley. Mr. John Dell, architect, Bradley-gardens-avenue, Ealing:—
Antill ... £2,577 | Perkins ... £2,437
Beer and Gash ... 2,573 | Richards (accepted) ... 2,385
Mitchell ... 2,489 | Drew and Cadman ... 2,380

LONDON.—For cleaning and painting the Bishops-gate Institute, Bishopsgate-street, E.C., for the Trustees. Messrs. Dale and Gadsden, architects:—
Allard and Co. ... £464 10 | Heaps ... £299 0
Kemp ... 308 0 | Pearwain (accepted) ... 296 0

LONDON.—For the erection of six houses in the Ellenborough-road, Wood Green, for Mr. C. W. Taine, "Lordship Tavern," Wood Green. Mr. E. Howard, architect:—
A. Brown ... £2,450

LONDON.—For the erection of higher grade schools, Wood Green, N., for the Tottenham School Board. Mr. A. M. Butler, architect, 16, Finsbury-circus, E.C. Quantities by Messrs. D. Campbell and Sons, 4, Finsbury-circus, E.C.:—
J. Chessum and Sons ... £24,250 | Charles Wall ... £19,250
C. Gray Hill ... 21,027 | H. Knight and Son, Chestnut-road, Tot-
tenham* ... 17,925
E. J. Coxhead ... 19,634
W. Scrivener and Co. ... 19,500
*Accepted, subject to approval of Education Department.

LONDON.—For alterations, additions, and fittings at the "Carpenter's Arms" public-house, Carpenter's-road, Stratford, E., for Messrs. Holt and Co. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E.:—
J. and H. Cocks ... £2,949 | A. E. Symes (accepted) ... £2,825

LONDON.—For new story, structural alterations, and bar fitting, at the "Lord Palmerston," Kilburn, for Mr. J. Drew and Cadman ... £5,189 | J. Bennett, Edgware-road* ... £5,136
*Accepted.

LONDON.—For new premises, Regent-street (late Hanover Chapel site), for Mr. T. H. Brooke Hitching. Mr. G. D. Martin, architect, 3, Pall Mall East, S.W. Quantities by Mr. W. Westmoreland:—
Contract No. 1.—Excavation and Foundations.
H. J. Williams ... £2,547 | A. Kellett ... £2,126
H. and E. Lea ... 2,450 | J. Greenwood ... 2,112
J. Grover and Son ... 2,400 | G. H. and A. Bywaters ... 1,985
Perry and Co. ... 2,276 | J. Carmichael* ... 1,955
Allen and Son ... 2,200 | *Accepted.

NELSON.—Accepted for building the Walverton Board School, for the Nelson School Board. Mr. Thomas Bell, architect, Burnley and Nelson. Quantities by architect:—
Masonry.—T. Dent and Sons, Nelson ... £4,349 0 0
Joinery.—W. Boothman and Sons, Nelson ... 2,100 0 0
Ironfoundry.—William Walton, Burnley ... 224 9 8
Concreting.—Asphaltec Concretors, Bir-
mingham ... 626 17 0
Slating.—O. Whitaker, Burnley ... 487 19 0
Plastering.—J. Hargreaves, Nelson ... 450 0 0
Plastering.—E. Butler, Barrowford ... 260 0 0
Heating, &c.—W. F. Spencer, Oldham ... 426 0 0
Painting.—W. Aspinall, Burnley ... 104 0 0
Gates and Railings.—W. Pollard, Burnley ... 119 0 0

NEWCASTLE-UNDER-LYME.—For oak seating St. Giles' Church. Mr. John Lewis, architect, Newcastle, Staffs.:—
T. Gallimore ... £850 | Harry Hems and Sons ... £595
J. Thompson ... 650 | Jones and Willis ... 565
E. Edwards ... 649

NEWPORT (Mon.).—For the erection of a new general hospital, &c., Cardiff-road. Mr. Richard J. Lovell, architect,

46, Queen Victoria-street, London. Quantities by Mr. James Kennedy, 25, Bedford-row, W.C.:—
H. Wilcox ... £34,250 0 | W. Bowers & Sons ... £31,940 0
C. H. Reid ... 34,110 0 | Dyson Parfitt ... 31,000 0
W. J. Bloxham ... 33,660 0 | John Linton ... 30,850 0
W. A. Linton ... 32,575 0 | Jno. D. Davies ... 30,097 0
Gradwell ... 32,572 0 | T. Westacott ... 29,991 17
Blackburn ... 32,425 0 | A. S. Morgan & Co., Newport, Mon.* ... 29,950 0
Samuel Warburton ... 32,314 0 | *Accepted.

OXFORD.—Accepted for new front and alterations to the "Hind's Head" public-house, Queen-street, Oxford, for Messrs. Hanley and Co. Mr. H. Quinton, architect, 15, Magdalen-street, Oxford:—
Wilkins Bros., Oxford ... £876

OXFORD.—Accepted for alterations and additions to 131, Infirmary-road, Oxford, for Mrs. Harris. Mr. H. Quinton, architect, 15, Magdalen-street, Oxford:—
Wilkins Bros., Oxford ... £180

OXFORD.—For building new latrines at the schools, Marsh Gibbon, Oxon. Mr. H. Quinton, architect, 15, Magdalen-street, Oxford:—
Herring, Marsh Gibbon ... £82 15 6

OXFORD.—For repairs to four cottages at Wolvercote, Oxon, for Mr. Ball. Mr. H. Quinton, architect, 15, Magdalen-street, Oxford:—
Bruckers Bros. ... £91 10 | C. C. Robinson* ... £79 0
*Accepted.

RADLETT.—Accepted for the erection of a residential cottage, Cobden's Hill, Radlett, Herts. Mr. C. Collas Robin, architect, 30, Great James-street, Bedford-row, W.C.:—
Whitehouse and Verdant ... £500

RAMSGATE.—For erecting four cottages, St. Luke's-avenue. Mr. W. A. Mackintosh Valon, C.E., Ramsgate:—
S. R. Port ... £680 0 | Woodhall ... £624 10
Miriams ... 665 0 | J. and H. White* ... 598 0
Hayward & Paramor, 641 0 | *Accepted.
[All of Ramsgate.]

REDCAR.—Accepted for works at a house at Redcar, for Mr. J. Gilchrist. Mr. Walter G. Roberts, architect, 61, Albert-road, Middlesbrough:—
Brick, Stone, Plaster, and Slating.—W. Dobson ... £254 1 6
Carpenter and Joiner.—T. Burton ... 275 0 0
Plumber, Glazier, and Gasfitter.—F. Bate-
man ... 99 12 6
Painter.—W. Bulmer ... 12 10 0

SALISBURY.—For additions to schools. Messrs. John Harding and Son, architects, 51, The Canal, Salisbury. Quantities by architects:—
Jenkins and Sons ... £2,497 0 0 | E. Hale ... £2,070 0 0
Vincent and Pol. ... 2,235 0 0 | Webb and Co. ... 2,060 0 0
Land ... 2,200 0 0 | Wort and Way, ...
E. Day ... 2,195 0 0 | Park Works,
T. Dawkins ... 2,195 0 0 | Salisbury* ... 1,950 1 7
E. Witt ... 2,175 0 0 | *Accepted.

SOUTH CROXTON (Leicestershire).—Accepted for the erection of additional stabling. Messrs. Miles and Beasley, architects, Friar-lane, Leicester. Quantities by architects:—
M. Hickling, System ... £200

ST. LEONARD'S-ON-SEA.—For alterations at No. 5, Grand Parade, St. Leonard's-on-Sea, for Mrs. Bowerman. Mr. W. Cooper, architect, 21, Havelock-road, Hastings:—
F. O. Dray ... £742 15 | W. Cousins* ... £340 0
Padgham and Hutch-
inson ... 520 0 | *Accepted.

THETFORD.—For new Cottage Hospital, Thetford, Norfolk. Mr. H. J. Green, architect, 31, Castle Meadow, Norwich:—
Adcock and Son ... £775 1 5 | J. Boughton and S. Holden ... 774 0 6
Son, Thetford* ... £731 14 0
*Accepted.

TIVERTON.—For erecting schools, Tiverton, Bath, for the School Board. Messrs. Silcock and Reay, architects, Octagon-chambers, Bath:—
Cowlton and Son ... £3,190 | J. Long & Sons, Rail-
Hayward and Wooster ... 7,899 | way-road, Bath* ... £7,655
*Accepted.

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WALSALL.—For additions to North Bank, Highgate, Walsall. Mr. Fred. W. Cross, architect, 2, The Bridge, Walsall:—
A. Lynex ... £557 George Insley, Mount-
Wm. Wistance ... 516 street, Walsall * ... £453
M. Hughes ... 481
[Architect's estimate, £450.]

WALTHAMSTOW.—For pulling down and rebuilding Nos. 43 and 45, St. James-street, in connection with Everett's stores, for Mr. R. Thos. Jolly. Mr. J. Williams Dunford, architect and surveyor, 100c, Queen Victoria-street, E.C.:—
G. Knight and Sons ... £2,494 Richardson Bros. ... £2,048
D. Gibb and Co. ... 2,160 Geo. Burdage ... 1,867
E. Fuller and Son ... 2,100 F. J. Coxhead, Leyton-
W. Lawrence ... 2,063 stone (accepted) ... 1,773
[Architect's estimate, £1,780.]

WALTHAMSTOW.—For erecting a terrace of cottage residences, for the Freehold and Leasehold Investment Company, Limited. Mr. E. C. Beaumont, architect, 78, Fleet-street, E.C.:—
Taylor and Sons, Portway, Plaistow, E. ... £3,500
WESTGATE-ON-SEA.—For the erection of two dwelling-houses in the Minister-road, for Mr. B. Watson. Mr. T. W. Moore, architect, 76, Chancery-lane, London, W.C.:—
J. Griffiths ... £1,662 0 0 F. Pearce ... £775 0 0
F. T. Denne ... 1,145 11 8 A. Miles (accepted) ... 775 0 0
WOODFORD.—For building a cottage at Woodford, Essex, for Mr. John Appleby. Messrs. Edward Brown and Son, architects, Commercial-street, Bishopsgate:—
Tapnerell and Davis ... £176 15 H. Wells and Sons* ... £149 0
J. V. Kiddle and Sons 175 0 * Accepted.

CONTRACTS OPEN.

COUNTY OF HERTFORD.
TO BUILDERS.
NEW POLICE STATION, HARPENDEN.
The Standing Joint Committee of Quarter Sessions and the County Council are willing to receive TENDERS for the above WORKS.

Builders desirous of contracting for the Works may see drawings, specifications, agreement, &c., at the County Surveyor's Office, 41, Parliament-street, Westminster, S.W., between the hours of ELEVEN a.m. and FIVE p.m.

A copy of the bills of quantities and a form of Tender can be obtained at the County Surveyor's Office upon payment of Two Guineas, which sum will be returned to the contractor upon the receipt of a bona-fide Tender and the documents which have been supplied to him.

Sealed Tenders, addressed to the Chairman of the Police Committee, and endorsed "Tender for Harpenden Police Station," must be delivered, under cover, to me here, not later than FIVE p.m. on WEDNESDAY, SEPTEMBER 29th, 1897.

Such security for the due execution of the Works as the Committee may require must be given by the contractor.

The lowest or any Tender will not necessarily be accepted.

URBAN A. SMITH,
County Surveyor.

No. 41, Parliament-street, S.W.
September 9th, 1897.

TO BUILDERS AND CONTRACTORS.

The London County Council is prepared to receive TENDERS for the ERECTION of a BUILDING for Stores and Offices at the Council's Main Drainage Works near Beekton, North Woolwich.

Persons desiring to submit Tenders may inspect the drawings and obtain the specifications, bills of quantities, form of Tender, and other particulars at the Engineer's Department, County Hall, Spring-gardens, S.W., upon payment of the sum of One Pound.

This amount will, after the Council or its Committee has come to a decision upon the Tenders received, but not before, be returned to the Tenderer, provided he shall have sent in a bona-fide Tender, and not have withdrawn the same.

Tenders must be upon the official forms, and the printed instructions contained therein must be strictly complied with.

The contractors will be bound by the contract to pay to all workmen (except a reasonable number of legally bound apprentices) employed by them wages at rates not less, and to observe hours of labour not greater, than the rates and hours set out in the Council's list, and such rates of wages and hours of labour will be inserted in, and form part of, the contract by way of schedule.

Tenders are to be delivered at the County Hall in a sealed cover, addressed to the Clerk of the London County Council, and marked "Tender for Store Building, Barking Outfall."

No Tender will be received after TEN a.m. on TUESDAY, OCTOBER 12th, 1897. Any Tender which

does not comply with the printed instructions for Tender may be rejected.

The Council does not bind itself to accept the lowest or any Tender, and it will not accept the Tender of any person or firm who shall on any previous occasion have withdrawn a Tender after the same has been opened, unless the reasons for the withdrawal were satisfactory to the Council.

C. J. STEWART,
Clerk of the Council.
Spring-gardens, S.W.
September 16th, 1897.

TO BUILDERS.

The Metropolitan Asylums Board hereby invite TENDERS for BUILDING a SHELTER at South Wharf, Rotherhithe, S.E.

The specification, conditions of contract, and form of Tender may be obtained at the Board's Offices as under, between the hours of TEN a.m. and FOUR p.m., upon depositing the sum of Five Pounds (£5) in gold or Bank of England note, which will be returned to the depositor if he sends in a bona-fide Tender in accordance with the terms of this advertisement. Each Tender must be accompanied by a copy of the quantities, upon which the Tender has been based, fully priced and monied out, and no Tender will be considered unless so accompanied, nor will any Tender be considered if detached from the specification.

The drawings can be seen (upon the production only of the specification, &c.) at the Offices of the Architect, Mr. T. W. ALDWICKLE, 1, Victoria-street, Westminster, S.W., between the hours of TEN a.m. and FOUR p.m.

Tenders (which will only be received upon the lithographed form supplied by the Board) must be sealed, and endorsed "Tender for Shelter, South Wharf, Rotherhithe," and must be delivered at the Chief Office of the Board as under, not later than TEN a.m. on WEDNESDAY, SEPTEMBER 29th, 1897.

The Board do not bind themselves to accept the lowest or any Tender.

By order,
T. DUNCOMBE MANN,
Clerk to the Board.

Chief Office, Norfolk House,
Norfolk-street, Strand, W.C.,
Sept. 9th, 1897.

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TO BUILDERS and OTHERS.

The Metropolitan Asylums Board are prepared to receive TENDERS for the ERECTION of GATE-PORTER'S LODGE, at the North-Western Hospital, Havistock Hill, N.W., in accordance with plans and specification prepared by Messrs. PENNINGTON and SON, Architects, Hastings House, Norfolk-street, W.C., where such plans may be inspected between TEN a.m. and FOUR p.m.

Printed forms of Tender and specification may be obtained at the Office of the Board, Norfolk House, Norfolk-street, Strand, W.C., upon the payment of a deposit of £5 (gold or Bank of England note), which will be returned to persons sending in a bona fide Tender.

Sealed Tenders are to be delivered at the Office of the Board, endorsed "Tender for Gate-Porter's Lodge, North-Western Hospital," not later than TEN a.m. on WEDNESDAY, OCTOBER 13th, 1897.

The Managers do not bind themselves to accept the lowest or any Tender.

By order,

T. DUNCOMBE MANN,

Clerk to the Board.

Norfolk House,
Norfolk-street,
Strand, W.C.

September 14th, 1897.

**RUGBY URBAN DISTRICT COUNCIL.
SEWAGE FARM EXTENSION.**

CONTRACT NO. 1.

TO CONTRACTORS.

The Urban District Council of Rugby invite TENDERS for the CONSTRUCTION of the following WORKS in one contract—viz.:

(A) Main Effluent Outfall Sewer (24in. Pipes) from their Low-Level Sewage Farm to the River Avon.

(B) Diversion of Surface Water Drain near their Avon Waterworks.

The Drawings can be seen, and a copy of the specification, bill of quantities, and form of Tender obtained, at my Office on payment of Two Guineas, which will be returned on receipt of a bona fide Tender.

Sealed Tenders, endorsed "Outfall Sewer," to be sent to Mr. T. M. WRATISLAW, Clerk to the Council, on or before the 27th inst.

The Council do not bind themselves to accept the lowest or any Tender.

By order,

D. G. MACDONALD, A.M.I.C.E.,

Engineer and Surveyor.

Rugby, September 8th, 1897.

COMPETITIONS.**BOROUGH of COLNE.**

TO ARCHITECTS.

The Corporation of Colne invite Architects to submit COMPETITIVE PLANS for TECHNICAL SCHOOLS, PUBLIC LIBRARY, and PUBLIC HALL, proposed to be erected in Albert-road, Colne, at a cost not exceeding £5500.

Premiums of £50 and £35 will be awarded for the designs adjudged of sufficient merit, and placed first and second in order respectively.

The Corporation will be advised by a proficient referee in the selection of plans.

The premiated plans will become the property of the Corporation.

Particulars may be obtained on application to Mr. T. H. HARTLEY, Borough Engineer, Colne.

Drawings to be deposited at the Corporation Offices, Town Hall, Colne, on or before OCTOBER 20th next.

Town Hall, Colne,
Sept. 7th, 1897.

ALFRED VARLEY,

Town Clerk.

BEXHILL-ON-SEA.

TO ENGINEERS.

The Bexhill Pier, Park, and Land Company, Limited, are prepared to receive DESIGNS for a PROMENADE PIER and PAVILION. A plan of the site, with suggested arrangements, together with instructions to competitors, may be obtained from the SECRETARY, 7, Sackville-road, Bexhill-on-Sea.

THE BUILDING COMMITTEE of the LICHFIELD NURSING HOME invite PLANS and SPECIFICATIONS for the ERECTION of a NURSING HOME and INVALIDS' KITCHEN. Premiums of £10 and £5 will be given for the two best designs.—For particulars, &c., apply to the Secretary, R. R. REDMAYNE, 22, Dam-street, Lichfield.

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The Committee invite PLANS for the Erection of a NEW CHURCH for the District of St. Albans.

A plan of the site and conditions of the competition can be had on application to the undersigned. Plans are to be sent in not later than NOVEMBER 20th next. (Rev.) E. E. KIMBER.

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PREPARATIONS

Government Offices are being made for the erection of new Government offices,

Competitions.

Government offices,

and the necessary authority is being obtained from Parliament for the acquisition of certain sites. We understand it is definitely settled that the new War Office is to occupy the Carrington House site opposite to the Horse Guards. It is too late, and therefore useless to deplore the piecemeal manner in which all such schemes are undertaken in London. At different times different men of genius have made an effort to deal with such problems as confronted them in a broad and artistic manner—Wren, with his scheme for rebuilding the city; Inigo Jones, with his design for Whitehall Palace; and Barry, with his conception of a building for the Government offices. Had these been carried out in their entirety, London might have been the grandest, as well as the largest, city in the world. As it is, let us be thankful for the isolated buildings left us by these artists. Though it is too late to ask for any such complete scheme as Barry's, it is not too late to demand that every effort shall be made, and every facility granted, by those in authority to obtain the best buildings possible on the sites that have been chosen. The first requisite of a good building is a good site, and though that opposite the Horse Guards is not ideal, yet something could be made of it by a skilful architect, given a free hand. We suppose we may take it for granted that there will be a competition for this building. Had we an Inigo Jones with us now, we might be tempted to say, "Go to him, give him time and a free hand and he will give you a masterpiece." But failing such a man, we think a competition the best plan, *if properly carried out*. We do not intend to lay down the law as to how a competition should be conducted, but there are one or two points we consider advisable in this case. We are strongly of opinion that it should be open, and not limited to a few invited men of position. A large practice does not always mean artistic ability. Again, we think that in a large scheme like this, the better way is to hold a preliminary competition; just as few drawings as are required to explain the scheme, and to as small a scale as practicable; in fact, sketches showing the idea, with no attempt at elaboration. Above all, we hold that there should be a jury appointed to judge the designs. We do not mean a committee of officials and eminent personages with a professional adviser, but a jury of architects with perhaps one or two officials from the War Office. This principle was admitted in the competition for the former scheme for the Admiralty and War Office; it now wants development. But whether there is a competition or not, and if there should be, upon whatever lines it may be conducted, the foremost and most important thing is to demand that the arrangements for this building be carried out in such a way as to render Architecture possible. If the Government knows of any man of transcendent genius, with special knowledge of this class of work, let it go to him; but if it does not, let it arrange the competition in such a way as shall attract the best men—the artists—and give them a chance to do justice to themselves, and produce their very best. Let the conditions be favourable to Art

from the first, and when the best man is selected, let him have a free hand, or he will do no good. It is notorious that several recent public buildings have been spoilt by the interference of meddling officials, in matters about which they know nothing. Artists cannot work under these conditions, and it would be well if the Government would realize this fact. The Corporation has lately commissioned several well-known painters to decorate the Royal Exchange. We have not heard that its officials go down to the studios and insist on a certain length for Queen Elizabeth's nose, or on the colour of the toga of Julius Caesar. The interference of officials and committees on architectural questions is just as absurd as this would be. We have no doubt that a well-constructed building, of more or less convenience of arrangement, will be obtained, but we want something more than this, we want a work of Art. We want not only a building that serves its purpose, but also one that expresses it; a building that is not only a convenience to those that work therein, but also a continual joy to those that daily pass to and fro.

The Desecration of St. John's Wood.

SOME idea of the effect of the works of the Manchester, Sheffield, and Lincolnshire Railway (now the Great Central Railway) at St. John's Wood may now be clearly ascertained. A locality noted for its picturesque beauty and for the proportion of garden to bricks and mortar has been converted, under the authority of an Act of Parliament, into an uninteresting series of cuttings, enclosed by walls, &c., redolent of "engineer's architecture." It is useless to cry over spilt milk, but

surely, says Mr. William Woodward in a letter to the Times, the Company can have no desire to perpetuate its inroad into London by hideous surroundings, which distinctly emphasise its primary outrage. Lord's is now enclosed by a wall some 10ft. in height, faced with stock bricks and coped by red bricks semi-circular in section. This probably continues the character of wall which existed prior to the advent of the railway company, and, inasmuch as a peep over the wall discloses only the well-known cricket ground with its beautiful green turf and familiar pavilions, no substantial reason exists for objection. But within a stone's throw of Lord's the Company has formed an open cutting, and towards the Wellington Road and Wellington Place there has been erected, next the public footway, a wretched plain brick wall, some 7ft. in height, coped with common blue bricks, not even stepped to avoid the unsightliness caused by the fall in the ground, and extending for several hundreds of feet in length as a screen, not to green turf, but to a bare and bald railway formation. A short distance from this, along the Park Road, passing many more instances of "Engineer's Architecture," we can now see the sort of finish which will grace for a century or so this part of the undertaking. At Hill Street (or Boston Street) a bridge has been constructed enclosed by walls and iron railings of the very ugliest and most commonplace type, and the flank wall of a house, seen from the Park Road, has been simply "cemented" without the least attempt at relief by mouldings or other architectural feature. There can be no desire on the part of the public to lead the railway company into extravagant expenditure, but we have at least a right to expect that, where the works of the Company impinge upon public thoroughfares in what was a charming outskirts of London, those works shall be made as pleasant to the eye and as unobjectionable as



OLD HOUSES
CHURCH ROW
HAMPSTEAD
Fred Adcock

SKETCH BY F. ADCOCK.

it is possible to make them. Even a brick-enclosing wall may be made sightly, and curiously enough, in the very neighbourhood of the railway there are three examples of what is possible in the successful treatment of a brick wall. In the passage-way from Kent Terrace to the Regent's Park there is a brick wall, designed many years ago by the Office of Her Majesty's Works, a copy of which would have been delightful at Lord's and the Wellington Road. At the junction of Albert Road and Gloucester Road, there is an equally well-designed brick wall erected by a descendant of Pugin; and Mr. Willet, in a building speculation off the Avenue Road, has not only built a decent enclosing brick wall, but he has set it back and planted shrubs in front of it. Comparatively little has yet been done at St. John's Wood in the way of finish, but what has been done must cause alarm in the minds of all who care in the least for the future adornment of this part of London. A fine opportunity even now presents itself to the railway company to do all that is possible to make artistic and tolerable those portions of its works which so prominently obtrude themselves upon the public view, and I feel sure that an appeal to the Company will lead to an immediate reconsideration of its designs, and to a determination to construct the remainder of its works in a manner which shall present a complete contrast to those just finished.

ANCIENT METHOD OF WOOD GILDING.

By W. NORMAN BROWN.

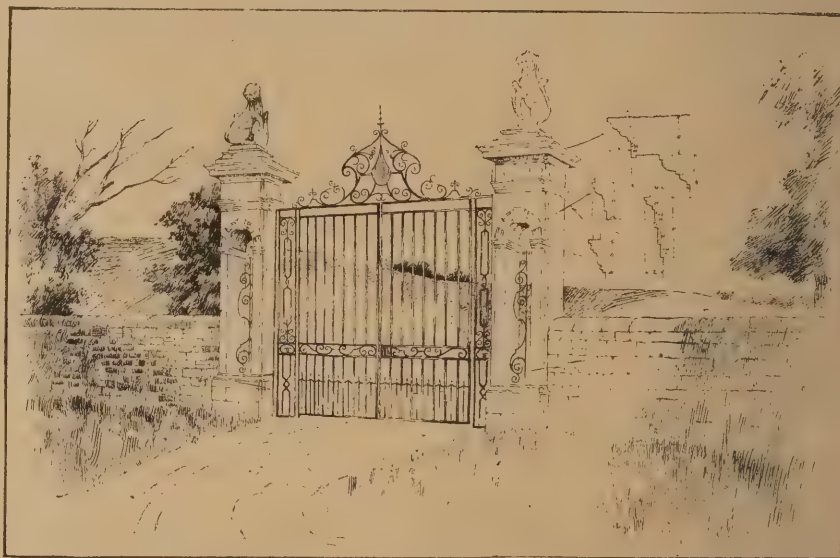
IT is somewhat profitable and pleasurable to dip into the old-time authors, and to compare their method of working with that adopted in the present day. Thus, some short time since, dipping into a book published a little over a century since, the writer came across an interesting description of the method by which gilding on wood was effected in those days. In the book in question the author states that the art of gilding on wood was accomplished in one or two ways. In the one the leaf-gold was placed upon a coat of whiting, and called plain gilding, this method not admitting of burnishing. The whiting was laid upon the work in several thin layers, each coating being allowed to get dry. The work was then watered or dampened, and the leaf-gold gently laid upon it by means of a piece of cotton or soft puff. As the water was absorbed by the whiting the gold adhered, and the loose pieces of leaf were brushed off gently when the work was finished and dry. This was virtually "dead" gilding. In the second method of gilding referred to above, was that which allowed of the work being burnished, the gold in this process being laid upon a coating of gold size. The preparation of this size was supposed to be a trade secret, but the following recipe, the writer states, was considered among the best: Take 1½ lb. of the best pipe clay, ½ oz. of red chalk, ½ oz. of black lead, 40 drops of sweet oil, and 3 drachms of the best rendered tallow. Grind the pipe clay, red chalk, and black lead with water, but all separately, as finely as possible. Then mix these with the oil and tallow, and grind all together till the desired consistency has been attained. Workmen evidently moved slowly in those days, for the writer says that "this size is scarce fit for use till it has stood two or three years; if it stands twenty, it is still the better!" This must surely be a joke. Imagine a case of this size being handed down as an heirloom from father to son! Anyway, we are told that the size was laid on in two coats and allowed to dry, and when ready to lay on the gold the sized surface was watered, and then the leaf laid on. When the work had stood some time—possibly twenty years, for the author sayeth not—and had become thoroughly dry, it was burnished with a "dog's tooth." The author goes on to say that work gilded in this way will stand the weather for many years, especially if the size be old, "in which consists the chief beauty of the performance," which is another way of saying that the durability of the work mainly consists

upon the oldness of the size. Altogether, our forefathers were funny people, and it is little wonder that their work lasts so much longer than that of these days, when they took such a long time over it.

"THE MODERN ATHENS."

THE members of the Dundee Institute of Architecture, Science, and Art visited "the modern Athens" on the occasion of their annual excursion. The party was under the charge of Mr. Leslie Ower, the President of the Institute; Mr. J. J. Henderson, its secretary; while Mr. Hutton and Mr. Blackadder, members of the Council, gave assistance when required. The new McEwan Hall, which has been presented to the University by Mr. McEwan, one of the members of Parliament for the city, first claimed attention on arrival at Edinburgh. The hall, which is hardly finished, adjoins the Medical School, and is the crowning feature of that handsome group of buildings. Mr. Walter Clark, clerk of works,

an observatory site—a free horizon to the north and south, an absence of vibration, and the desire to have it near Edinburgh. Chimneys are undesirable neighbours, as the columns of heated air disturb the homogeneity of the atmosphere, so that there are as few of them as possible. There are a thousand and one special points which have to be kept in view in the construction of an observatory, and they were explained as far as circumstances permitted. For instance, the telescopes have to be mounted on pillars built on the rock, and rising up inside the building, but having no contact with it, so as to prevent vibration. Then the transit-house requires that the temperature should be the same inside as outside, and a considerable amount of ingenuity is expended in securing that result. They next turned their attention to the memorials of the past, and at the end of a short drive found themselves at Craigmillar Castle. The walls, round which the noise of war not unfrequently raged, are crumbling ruins. Mr. Ross gave an entertaining description of the building, mentioning its chief



OLD GATES AT KIRKTHORPE, NEAR WAKEFIELD. FROM A SKETCH BY R. A. BASDALE.

met the party at the entrance, and showed them over the place. The hall is circular in shape, contains a large "pit" and two galleries, and is capable of seating almost 3000 people. The accessories, in the shape of side rooms, corridors, &c., are of course very complete, and the fitting-up has been done on the most approved principles. Dr. Rowland Anderson is the architect of the building, and it has been in the course of erection for the last nine years. Mr. Clark gave a full description of the hall and appurtenances. The sculpturing and decoration of the building are, of course, on a magnificent scale. Everything appears to have been done handsomely and regardless of cost. The organ, which, it may be remarked, was not in the original plan of the building, has been erected by the Hope Jones Electric Organ Company, of Birkenhead. It is in seven different pieces, but has been so placed as not to look as if it was an afterthought. The feature of it is the console, which looks like an American organ, and can be moved about the hall at will, and placed where convenient. A long pipe containing 1700 wires connects the console with the organ proper. A glimpse into the interior of the instrument discloses a bewildering mass of wood and metal. The cost of the hall has been £110,000. The new Observatory on Blackford Hill next claimed attention. The visitors were taken into the library, and afterwards conducted to the roof, where they were treated to a short historical and descriptive statement with reference to the Observatory by Mr. Robertson, H.M. Inspector of Works. The building on the Calton Hill was incapable of holding the books and apparatus, and a more suitable site had to be secured. Mr. Robertson explained the indispensable conditions of

historical and architectural features. The party wandered through its large dining-hall, its kitchen, and endless rooms, and also stood in the chamber once occupied by Mary Queen of Scots. When the castle was built, and by whom, is not known, but the name is said to be derived from the Gaelic, *Craig maol ard*, signifying a high and bare rock. The name appears in many different forms throughout the centuries, and is first mentioned in 1137. The "castle, fortalice, and mill" of Cragmelor are definitely referred to in 1511. Its associations with Queen Mary are particularly rich, and evidently it was by the merest chance that its walls were not stained with the blood of Darnley.

The freehold of Turner's well-known house at Twickenham was put up to auction last week and sold for £1200, a figure that works out at about eighteen and a half years' purchase of the rental value. Evidently its associations had no marketable value.

The refuge-hut on the Zugspitze, the highest mountain in Germany, 10,000 ft. high, was opened recently. It stands on the grat between the east and west peaks, affording accommodation for twenty-two guests; and is built of stone bound together and fastened to the rock by massive steel bars, the interior being warmly lined with cork and felt.

While workmen were engaged digging a pipe track at a shipbuilding yard at Campbelltown, they unearthed a stone cist containing human remains. It was oblong in shape, and formed of four rough slabs of mica schist. It was about 3 ft. long and 20 in. broad at one end, extending at the opposite end to 2 ft., and was in depth about 2½ ft. The bottom consisted of gravel. Only a few bones were found in it.

STROLLING SKETCHES.*

No. 12.

By R. A. EASDALE, A.R.I.B.A.

BETWEEN WAKEFIELD, DONCASTER,
AND SELBY.

IN these days of cheap and easy travel it is possible for most architectural students to visit and study many of the finest buildings in the United Kingdom, and there are not many people who have not "been abroad" with this object; but how few, comparatively, really study the buildings they visit—and the number who take the trouble to make even rough notes of the salient features and characteristics of the work are, I am afraid, very much in the minority.

No doubt the splendid travelling facilities now obtainable are in some measure responsible for this state of things. Time is so precious and competition so keen that we almost unconsciously practice in our leisure the habits of our working hours—and put in as much work as possible in the shortest time. This easy travelling, too, is responsible for the neglect of many of our small though worthy old buildings.

It is a great temptation for a man to find that for a few pounds he can rush through old Normandy, or flit through one or two towns in Belgium or Western Germany. He goes hand-in-hand, probably with a professional cicerone, but what results can he show for the expense of time, money, and nerves?

I know several men who have returned from such tours with very little to say on the subject of the places they visited except execration unbounded on such things as sleeping accom-

modation, cuisine, and their own lack of linguistic ability.

No sane man will deny that travel is most necessary for the education of an architect, and travel abroad especially is a priceless boon to those whose means and command of leisure will enable them to do so unfettered by thoughts of business or home.

But to a man who cannot lay claim to these blessings, it is folly to spend one's hard-earned holidays abroad when so much work exists in England well worth everybody's attention, and that, too, at our very doors. I think that to us one of the greatest values of our ancient buildings is the fact that they have withstood the ravages of our trying climate—are suitable for that climate, and are truly English. Happily, England is still dotted over with interesting old buildings, and Yorkshire can lay claim to be, perhaps, second to none in this matter with other counties.

We are proud of our minsters, our abbeys, and parish churches, and the few old domestic buildings still extant—and it is of the architectural remains of the district between the well-known places of Wakefield, Doncaster, and Selby that I would speak.

I do not propose to treat of Wakefield Cathedral or Doncaster Parish Church, and only slightly of Selby Abbey, my concern being more with the comparatively unknown village churches, &c., lying in the country between those places, to exhibit sketches and drawings of some of them, and give a short description of each, in order to induce more of my fellow students to explore a part so strikingly rich in work of this kind.

Lines joining Wakefield, Doncaster, and Selby would, curiously enough, exactly form an equilateral triangle of eighteen miles length of side, and the whole of my specimens lie in this triangle or very near the boundary of it.

The district contains no building of any pretension to size or grandeur, but it is of no less value on that account. There is a great tendency to-day to ignore the "bric-a-brac," as it were, of our Architecture. The Royal Academy Architectural School and the Science and Art Department seem to encourage students to attempt measured work and designs far beyond their capabilities. For instance, one often sees attempts at designing cathedrals and town halls by students hardly out of their teens, and who would probably make a very indifferent design for a lych gate or reredos, or even for a small villa. This must be wrong, for, putting aside the ludicrous designs, how many times will a design for a cathedral be required in England during our lives? Yet many of us may have the designs of churches, country houses, &c., entrusted to us. Therefore I say the measuring and thorough studying of one or two parish churches, and the designs of say a pulpit, screen, lych gate, or parsonage, or a parish hall or wayside inn, is far and away better practice than attempting something which will never be of use, or bring down upon one the well-merited taunts of our brethren.

No one will deny that it is most important for every student to cultivate and perfect himself in the habit of sketching, for it should really become habitual for an architect to sketch nearly every bit of striking, effective, or worthy detail that he comes across.

The R.I.B.A. in its curriculum lays special stress (in its advice to students) on sketching, measuring, and making drawings of existing buildings and their details.

But I am afraid it must be confessed that these two important branches in an architect's training are either neglected altogether, or done in a perfunctory, heartless way, just to scrape through some exam., or get up the sheets of evidences of study.



METHLEY CHURCH. FROM A SKETCH BY R. A. EASDALE.

* Essay read before the Leeds and Yorkshire Architectural Society.



OLD HOUSE, METHLEY. FROM A SKETCH BY R. A. EASDALE.

Like everything else, sketching is not acquired without much labour, practice, and perseverance, and many difficulties and annoyances have to be overcome, not the least of the latter being the very candid and often uncomplimentary remarks of onlookers. Then, again, a thorough acquaintance with the theory of perspective is absolutely essential before setting out to practice from actual examples. I have heard stories of prodigies who have produced the best work without any knowledge of perspective, but I do not believe any of them. A course of elementary and even advanced perspective is the very thing for the sketching tyro.

Another enemy (to my mind) of the sketcher is the camera. To all beginners I say emphatically, beware of the camera. We owe a great deal, certainly, to that wonderful and useful apparatus, but my experience has been that as soon as a sketcher buys a camera his sketch book seldom, if ever, appears outside. I have known a good many young architects become infected with the craze for photography, with the result that they have done little in the way of sketching and measuring. The facility with which the representation of an object (be it large or small) may be taken is the fatal attraction. A village pump may be photographed as easily as a cathedral. The photographer can show you a complete representation of a building, but can he draw from memory any of its parts? That is the test. He cannot even give particulars of its walling, and other details; but if a person has conscientiously sketched the building, and made a careful drawing, he can easily reproduce from memory any part thereof. This is a most important matter, and amazingly useful when one comes to sit for an examination.

Then, again, beginners nearly invariably make the huge mistake of trying to produce a pretty drawing, imitating the dodges of the best men which appear in the journals. Mr. C. E. Mallows told us in his lecture last season what a mistake this was—and a big mistake, too. I think it was the late eminent architect, William Burgess, who made some strong remarks with respect to this subject of pretty sketches—but perhaps he rushed to the other extreme. Care should be taken that, as far as possible, mere affectation of shadows, foliage, and foregrounds should be severely left alone.

To all sketching beginners I say: Draw the building as you see it, and the result, if correct, will look pretty enough without any or very little shadow or foliage.

Mr. Stratton told us in his recent excellent paper what a voluminous sketcher and measurer Sir Christopher Wren was—how he wrote from across the channel to a friend that he was bringing all France home with him. The fact that such an illustrious man as Wren took pains to sketch and measure so much, should spur us on to emulate his example in that way.

I have been led to make the foregoing remarks from there being such poor competition for the handsome prize offered by our President last year for sketching. I expected quite a crowd of competitors for the prize—which meant engaging in this the most delightful occupation of our Profession.

There is no lack of examples, as I wish to show, so that cannot be the cause of this lamentable state of affairs. Possibly the counter-attractions of tennis, cricket, and other social enjoyments are in many cases the real causes of the poor competition last October.

Perhaps you will excuse me if I suggest that in order to reach the buildings around Leeds, a bicycle is, next to the sketch book, the most useful article. Without one of these inartistic machines, it is almost impossible for a Leeds man to penetrate the rural district around in the scanty spare time usually falling to the lot of members of our Profession.

Do not be retarded in purchasing a bicycle by the reports that the riding of a bicycle causes one's hand to shake at the end of a journey, and so unfit one for the delicate work to be done. I have frequently ridden sixteen to twenty miles before sketching—and that in the days when pneumatic tyres were things unknown, and cushions a luxury. After eight years of cycling and sketching, I can unhesitatingly recommend such means of locomotion as a healthful, delightful way of reaching the happy hunting grounds of the sketcher and measurer.

I have decided to explain the drawings in the order in which we should come across the buildings they illustrate if we took a tour in the district. Obviously this prevents any classification in styles, but I will treat of that after I have explained each sketch.

We begin our tour at Wakefield, the only place I have sketched here being the half-tim-

bered building in Kirkgate, commonly called the "Six Chimneys." It is one of the best examples in the neighbourhood of that style of building.

The old chapel on the bridge, at the bottom of Kirkgate, deserves a much more careful drawing, being a good example of the ornate decorated work of the fourteenth century.

Sandal Church, one and a half miles out of Wakefield, is of large plan—presumably much altered and restored—the place being, no doubt, the victim of the contending parties who waged war round Wakefield during the Wars of the Roses.

Past Heath Common, we come to the village of Kirkthorpe—a veritable Eden for the sketcher of tit-bits. Here we find a very interesting parochial foundation building of Tudor style—the plan being a set of infirm people's rooms grouped round a central hall. This hall has a large recessed typical fireplace at one end, and is lighted from the top of roof by means of three pretty dormers.

The church has not much about it which is very interesting, but the stocks in the vicinity are perhaps more so to many, as they are the only existing specimens of the kind for miles around. The upper wooden cross piece can be moved up and down in a groove in the sides of stone posts to allow insertion of the culprit's feet, and then locked to the lower wooden limb.

Opposite the stocks are some interesting wrought-iron gates—originally the entrance to Heath Hall—now only used for agricultural purposes.

About one and a half miles north of Kirkthorpe, Normanton Parish Church (mostly of Perpendicular style) contains a very peculiar tomb with Ionic capitals and quaint panels. The entasis of the engaged double columns is very distinct, in fact, the tomb is well worth measuring.

Taking Methley Church next in geographical order, we find a large church, with nave, chancel, and south aisle only, and a decorated tower and octagonal spire of good proportions. At the east end of south aisle is the Waterton Chantry, from which it is divided by an oak screen of perpendicular work; and the south wall of chancel is pierced with a magnificent tomb, that of Sir Robert Waterton, died 1424, and Cicely, his wife. There is some fine canopy work in this tomb, and the shields here, as elsewhere in the chantry, are very

full of heraldic devices, though sadly losing shape.

There was originally a Saxon church at Methley or Medelai—and this has been mentioned in Domesday Book. William the Conqueror parcelled out Methley to the powerful Ilbert de Laci, who built Pontefract Castle in 1081. I may mention that Henry de Laci, the founder of Kirkstall Abbey, was grandson to Ilbert of Pontefract. For 300 years Methley was an adjunct of the great castle of Pontefract, and for 300 years its domestic vassalage to this great seat of power and empire was unbroken.

All the Plantagenet kings were frequent visitors to Pontefract and the neighbourhood, and the meadows of Methley were the recreation grounds of that time for hawking, the jousts, and other mediæval pastimes.

The oak screen mentioned before is perhaps not a very pure example in some details, but I think it is very well worth studying and measuring, even if only for the fine carving in spandrels below rail and the cresting.

I noticed in the church a modern attempt to copy the before-mentioned oak screen. Whether lack of funds or inartistic taste was the cause I know not, but the screen is a miserable failure, for the whole spirit of the old screen is lost.

About 300 yards from the church stands the old manor house, with quaint gables forming a good skyline, and the massive deep chimney, all typical of the Tudor period.

Coming near Leeds, to Oulton, just at the foot of John o' Gaunt's Hill, is a pretty group of seventeenth century half timbered houses. The closeness of the uprights is noticeable, and the absence of any curved timbers supporting corners.

Kippax Church is well worth examination. Undoubtedly it was originally a Norman church, as in very many places the original

Norman herring-bone work appears, whilst traces of Norman arches may be seen on the north wall. Before being recently restored the tower had a Norman window.

A curious pedestal arrangement on top of the tower is said to have been used to carry the beacon—which served as a guide to the surrounding valleys—when all around was one huge forest. The various types of window are worth mentioning, and the little priests' door into chancel, which must be Norman.

This church contains a font of peculiar design, curiously enough dated exactly the same as that at Birkin, some seven miles away.

Going three miles east of Kippax, we come to Ledsham, passing Ledston Hall on the way—a huge Elizabethan house, with characteristic gables and turrets. Ledsham is one of the most picturesque villages in the district. The cottages are worth sketching, particularly some quaint chimneys, and the old Manor House, gabled and mullioned.

Ledsham Church is beautifully situated in the heart of the village, on rising ground, and is almost surrounded with fine umbrageous elms; and the only good view of the church is from the west, as seen in sketch.

The church is reputedly of pre-Conquest origin, and no doubt it is most probable that such was the case. The lower part of tower, nave, walls, and chancel arch look like pre-Conquest work, and the little doorway at foot of tower, with its running leaf ornaments, and the long imposts from which arch springs, as well as signs of "long and short" work in the jamb stones—all these facts point to the existence of a Saxon church here. The tower is square, with no buttresses. The upper part of tower or belfry is Norman, with bold windows, and there are some decorated or perpendicular embattlements, pinnacles, and spire.

The plan of the church consists of tower, nave—north aisle only—and chancel. The

north aisle extends nearly to the face of east wall of chancel, and that part alongside chancel is the private chapel of the Wheelers, of Ledston Hall, descendants of the renowned Lady Betty Hastings, who endowed the adjoining almshouses and school. The east end of the church contains three lancet E.E. windows and the Vesica Piscis above.

About five miles north of Ledsham one comes across an odd-looking building standing alone in the middle of a field, without approaches of any kind, and called by some Lead Church, and others Lotherton Chapel. I thought the bell turret and doorway worth sketching. Going a little out of our way to visit Bramham, we find another Norman tower, similar to those at Kippax and Ledsham, with spire like the last named.

Coming back past Lead Church, about 1½ miles bring us to Saxton, a little old-world village, with a very ancient-sounding name, leading one to expect a very old church. I was disappointed with the building, and only sketched the tower.

Sherburn Church, about two miles from Saxton, south-east, has a very ancient history. Sherburn-in-Elmet probably obtains its name from the fact that in Saxon times it stood on the eastern boundary of the woodland fastnesses of the British Kingdom of Elmete, and on the edge of that kingdom ran a stream which "sheared" or "cut off" the British from the Saxon realm. Hence the name Sherburn.

In a manuscript in York Minster library are some notes of the existence of a Saxon church about the year 900 A.D. Athelstan had a royal demesne here when he first gathered together Saxon and Angle, and naturalised Dane into one English nation to combat the allied forces of Gael, Scot, and Northman. In 959 he gave his palace and Manor of Sherburn to the Archbishop of York and his successors,



KIPPAX CHURCH. FROM A SKETCH BY R. A. EASDALE.

and richly endowed York, Beverley, and Ripon Minsters in commemoration of his success.

The church is a large one, with nave, aisles, chancel, south porch and chapel at side of porch, and massive square tower with tremendous buttresses. Most of the exterior is Perpendicular work, but internally we find some Norman arches on cylindrical columns. A transitional Norman Early English doorway to porch is very interesting.

Monk Fryston Church (about three-quarters of a mile south of Milford Junction) is well worth visiting. Archbishop Thomas the First gave the Church of Fryston to the monks of Selby in 1070-1100. The original Norman Church was probably built by Archbishop Thomas.

Before the recent restoration by Mr. Hodgson Fowler the church stood as in my sketch. I was most fortunate in happening to visit this place a week before the work was commenced, in fact, the roof covering was removed at that time. The lower part of the tower is Norman to a height of about 30ft., and there exists in the upper part four early and very interesting windows of two rudely-headed semicircular lights with central midwall shaft, and quasi-cushion capital of oblong form. This tower, which is 9ft. square inside, was probably Archbishop Thomas's work, and his church most likely consisted of small nave with chancel and apsidal termination, as at Birkin.

The rest of the church is mostly Decorated work, one date assigned being 1338. A few pieces of splendid stained glass of this date bear comparison with some in York Minster. The date of aisles being widened and clerestory built was fifteenth century. Originally, it is said, the nave and aisles were under one roof, as at Skelton, York. On each side of the chancel arch are hagioscopes, or squints, and the stability of the arch itself is somewhat jeopardised in consequence. During the recent restoration, I believe it was found that much of the foundation was in a hopeless state, and it became necessary to resort to the difficult and costly process of underpinning the walls, and the piers and arches had to be shored up one by one in order to do this. The whole was carried out most satisfactorily.

(To be continued.)

PRESTON TECHNICAL SCHOOL.

OPENING CEREMONY.

SPEECH BY LORD DERBY.

THE new Technical School in Corporation Street, Preston, which has been built out of funds provided by the trustees of the late Mr. E. R. Harris, on a site given by the Corporation, was opened by the Countess of Derby recently. The Council of the Institute ten years ago came to the conclusion that a technical school would form a fitting memorial of Her Majesty's Jubilee, and the present substantial, and at the same time ornamental, edifice is the result. It has been built from the designs of Messrs. Cheers, Aspinwall, and Smith, and will cost, exclusive of furnishing, probably about £15,000. It comprises a weaving shed—one of the largest in the county—a large spinning shed, a textile museum, a lecture hall, class-rooms, and every provision for teaching the staple trades of the district. Special rooms are set apart for classes in mechanics and engineering, machine and building construction, carpentry and joinery, plumbing, &c. Active steps are at present being taken to equip the building with machinery and all the most modern appliances for teaching the various industrial processes. Some valuable gifts of machinery have already been made by large firms in the district, and it is expected that similar contributions will be received from other sources.—The President, in the course of a brief speech, explained the objects of the Harris Institute, and claimed that those associated with it endeavoured worthily to take their part in maintaining the industrial supremacy of the country. The Technical School, which they had been able to provide by means of the wise

generosity of the first Harris trustees, would enable them to do that more effectually. The variety of their work had so much increased, and the number of their students had become so greatly extended, that that new building had become a necessity. In speaking of the Art and Science teaching at the Harris Institute, he was glad to be able to acknowledge the very handsome gift of £2600 to the funds of the Institute by the Rev. C. H. Wood and Dr. Hodgson, the trustees of the will of the late Miss Tuson. This gift had set free other funds, and thus enabled them to provide for the purchase and equipment of the Glover Street school, where domestic science was taught.—The Countess of Derby then declared the school open, and expressed a cordial wish for its future success.—The Earl of Derby referred to the great growth of interest in technical education during the reign of the Queen, and especially during the last decade of that reign. He thought no other movement would so distinctly impress itself upon the future of the country. Not very long before the first Jubilee of the Queen the movement for technical education was only in its infancy, although there were some, the pioneers of the movement, who realised the importance of the question, but still they were a minority, and anyone who had expected to find technical instruction going on through the country would have been woefully disappointed. There had always been a glimmering in the northern counties that there was something to be learned between the ordinary education of a child at school and the later education gained in technical, artistic, or scientific subjects, according to their position in life. The evening schools had always been a marked feature of the educational work carried on in the northern and especially in the manufacturing districts; and at the present moment there existed the Union of Institutes for Lancashire and Cheshire, comprising, he believed, over 100,000 persons, who were connected, some practically, some in theory and goodwill only, with the work of advancing education out of the ordinary working hours; but the technical instruction movement had come in to supply much that was lacking. Those who now supported technical education had at their command a supply of funds which was sadly lacking to those who were only advocating the evening schools, but the object was much the same. Technical education showed them how to do on recognised principles that which was to a great extent formerly done by rule of thumb. There was one fear only with regard to technical education, and that was the danger of the various educational means giving in some matters the same instruction. He had been at a meeting in Manchester the previous evening, at which the School Board, the Technical Instruction Committee of the City Council, and the representatives of Owens College had met with a view of obviating that, and arranging that that which was elementary should be taught in the elementary schools, that which was technical in the technical schools, and that appertaining to the highest knowledge in the College. Thus children could be taken gradually from the lowest to the highest educational point. He did not say that that could be done anywhere. As yet they had not in Preston anything like the Owens College, but it might come in time, and, at all events, they had the various gradations by which children might be taken from one class or another, thoroughly grounded in elementary knowledge, and then drafted on to technical, scientific, or artistic work. He did not wish to speak disparagingly of Art, but, still, in such a land as ours the future depended more on technical work than upon Art. He asked where was the same man or woman who would say that our efforts should be relaxed in regard to this movement. Whatever they might be doing, they could depend upon it that foreign countries also were very much alive to the value of education. He instanced especially the great work which was being done in Germany, and the thorough training which was there supplied to the people. There, he said, they would have in a technical school not one or two looms, but every variety of loom, and the student was

taught how to obtain the best result from each one. Englishmen were apt to speak rather disparagingly of anything produced in Germany, but he was not sure that there was not sometimes a note of envy to be detected. Was not Germany advancing at a great rate, whilst England, perhaps, was content to go a little slower? He was afraid that it would be found that, whilst this land had advanced much during the last fifteen years, other countries had done still more, and it was essential that this work should be taken up throughout the length and breadth of the kingdom; that education should be valued not only as an abstract possession, but should be applied to the better conduct of that trade in which the people were engaged. He hoped the managers of the school would see their way to co-operate with other public bodies. Preston had always been proud of the position it had occupied in regard to its school teaching, and whilst it had its own peculiar way the inspectors reported favourably upon it. They hoped that the same cordiality would be extended towards this new institution, and that the building might prove to be an earnest of that spirit which would hereafter inspire a still larger Preston to carry on the work, and give operatives and others an opportunity of acquiring that technical and scientific knowledge which could only be learned when the two were properly combined. If Lancashire was to continue to hold the position it proudly believed she now held as a leader in technical work, there were those present who by word and deed could assist her.—The Mayor of Preston moved a vote of thanks to Lord and Lady Derby, which was seconded by the Rev. G. Steele (vice-president of the Institute), supported by Sir John T. Hibbert, and carried unanimously.—A vote of thanks was afterwards awarded the president, on the motion of Sir Thomas Storey, seconded by the Rev. S. A. Steinthal, chairman of the Union of Lancashire and Cheshire Institute.

EXMOUTH'S memorial to commemorate the record reign is a clock tower, now in course of erection on the sea front. It will stand 45ft. high, and for the most part be of Bath stone.

THE sewerage outfall works of the Oldham Corporation will be formally opened to-morrow (Thursday). The new system of sewerage disposal has, as a matter of fact, been in operation for some time.

WHILE the quarrymen were at work in Crowhurst Quarry, between Battle and Hastings, a magnificent fossilised bone, measuring about 30in., was found embedded in the blue stone. For some time past fragments of huge bones have been discovered in the blue marl, but beyond fossil mussel-shells little had been brought to light.

THE Stafford Corporation Sewerage Works, which have cost £45,000, were opened the other day. The work has taken three years to complete, and something like sixteen miles of deep main sewers and eleven miles of branch sewers have been laid. The sewage is first treated at the sanitary depot, where a destructor and sewage pumping machinery and reception tank are erected, thence it is pumped to a farm half a mile away. Here the sewage will be treated by precipitation and filtration on the land.

THE pollution of the River Lea in the metropolitan district is again becoming a matter for serious consideration. According to a report of the Public Health Committee of the Hackney Vestry, which will be presented to the vestry at its next meeting, the matter has been under the consideration of the local authorities for some time past. Samples of the river water have been taken and analysed from time to time, and the result of these analyses, which have been submitted to the vestry, show conclusively that sewage contamination of the river is going on from some source or another. Copies of these analytical reports have been forwarded to the Local Government Board, the London County Council, and the Lea Conservancy Board, but beyond formal acknowledgments the Committee is unaware of any action being taken to remedy the existing state of things.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

September 29th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THERE is an unconventionality about the address card of Nelson and Edith Dawson. From the intricacies of the lithographed card we infer that Mr. and Mrs. Dawson have removed their habitation to Swan House, Chiswick Mall, W. At the foot of the card is the Thames—portrayed with quaint originality. Above the river is a plan of parts of Chiswick and Hammersmith; the last-mentioned district is denoted by a hammer held upright by the smith as it rests upon an anvil. Above this plan of the roads leading to Chiswick Mall is a train on a sort of elevated Brooklyn Bridge, but we are assured that this is not American tallness—the train is merely running into Ravenscourt Park Station.

It is gratifying to note the manner in which local opinion is becoming alive to the value of properly arranged art galleries in all the more important of our provincial towns. The decision of Glasgow to spend a sum of £100,000 on a new museum and Art gallery, and the outcry at Manchester concerning the inadequacy of the present Corporation gallery, are not isolated instances of the spread of this feeling, for in many other directions steps are being taken to provide suitable accommodation for the disposal of art work. At Reading, for instance, a new art gallery which has been added to the municipal buildings, is to be opened about the middle of next month, and about the same date the Duke of Cambridge will lay the foundation-stone of a gallery at Bath. We may fairly hope to see in a few years time a building of this type existing in every centre of population, and to find periodical exhibitions of works of Art recognised as valuable adjuncts to any scheme of public education.

THE long-talked-of reconstruction of Highgate Archway will soon be commenced. Designed by Sir A. R. Binnie, the engineer of the London County Council, the new viaduct will consist of one great span of ornamental ironwork, on the spandrels of which will be displayed heraldic shields bearing the cognizances of the five authorities contributing towards this costly work. The tender of Mr. C. Wall, of Chelsea, for £25,126 has been accepted, and two-and-a-half years allowed for the completion of the contract. The existing structure, at one time considered to be such a marvel that people would make long excursions to see it, cannot be considered very wonderful to-day, when Tower Bridges and Severn Tunnels have their rivals, but still it is imposing, if also ugly. Its height to the crown of the arch is 86ft. above the roadway. Built before iron and steel had come largely into engineering schemes, it is a very solid structure of stone and brick. The new Highgate Archway will be welcome, if only for the lightness of its construction.

SOME twenty years ago, when it was proposed to remove the tower of Hampstead Church, strong objection was taken to the scheme on the ground that Hampstead's

associations were essentially of the last century. Eighteenth-century brick, indeed, distinguishes London's breeziest suburb as surely as eighteenth-century poetry has left the impress of its memories. Of all such buildings left intact none are more picturesque or more alluring in their softened colour than the line of houses known as Church Row, and, as most people are aware, Church Row is threatened. Plainly it is within the right of an enterprising builder to put the more profitable new in place of the more beautiful old on his own ground, and it is made equally plain that public bodies have no power to interfere. Sir Walter Besant sent a vain appeal on behalf of Church Row to the County Council, and now the Hampstead Vestry, on the recommendation of their Free and Open Spaces Committee, have given a similarly negative answer. In his letter to the local body, Sir Walter, himself a resident in the neighbourhood, remarked: "I want to interest you in the threatened destruction of the beauty of Hampstead by flats. I know that certain flats have been put up in Frognal, and now Church Row is threatened. Can the Vestry do nothing?" The Vestry cannot, but private enterprise might.

ONE of the most extraordinary mediæval paintings in glass of "Our Lady of Pity" may be seen in the east window of Long Melford Church. It represents the Virgin Mother with the emaciated nude body of her adored Son reclining upon her lap, and all over the body are punctured wounds in the form of a crescent, from which exude three drops of blood—and the wound in the side is large and ghastly, from which blood is freely flowing. Round His head is a rough crown of thorns, with cruciform nimbus and rays far extending above the head. Beneath is a kneeling friar, the donor, no doubt, of the painting.

SCHOOLS OF ART are just commencing the winter term. As a technical educational agency King's College takes high rank, and is deservedly held in high esteem for the instruction there given in Architecture, building construction, and modern practice. Professor Banister Fletcher, F.R.I.B.A., is at the head of this division, Mr. Banister F. Fletcher, A.R.I.B.A., is the lecturer and studio instructor, Mr. H. P. Fletcher, F.S.I., A.R.I.B.A., is the assistant lecturer, and Mr. James Bartlett the demonstrator; so that the teaching is in capable hands, and very good results have been obtained. The courses of instruction are intended to furnish full information in the theory and practice of Architecture and building construction, and in the application of the principles of mechanics to construction; whilst a special course has been arranged for students who wish to prepare for the R.I.B.A. and other examinations in one year. The series of evening lectures has been very carefully arranged to the best advantage, and the architectural studio and reference museum are found of material assistance to the student. The London County Council has arranged with the College for a series of lectures on "The History of Architecture," by Professor Banister Fletcher, during Michaelmas and Lent terms; and other signs of increased vitality on the part of the College are not lacking in the syllabus of the session commencing on the 4th prox.

MR. EDMUND PHIPPS writes to the Times from the Windham Club, S.W.:—"A passion for uniformity has led the Westminster Vestry to lay down asphalt in Queen Anne's Gate. Its next step is harder to understand. On the southern side, just where Queen Anne's statue stands, the line of the street is broken by a sharp corner, beyond which the street broadens out westward. The pavement follows the right angle thus formed, and this break is not the least charming element in the peculiar beauty of this quiet, old-fashioned street. But the vestry has gone out of its way to smooth out half the effect of the corner by carrying a new pavement from the point of the angle to join the old pavement some thirty yards further west. I can find no corresponding

advantage to compensate for the painful result. The pavement was already of ample width; the roadway will be now far too narrow for the many carriages which have to wait in this part of the street during the season. We did not want the asphalt. Certainly we did not expect so senseless a narrowing of the road."

PROUDLY a Canadian firm announce that in a town in the Dominion it has erected in six days four hours a large business building. Presumably the chief material of the structure is timber. What do English builders say to this rapid rate of construction? The boast reminds one of the circumstance that the Royal Amphitheatre, in Great Charlotte Street, Liverpool, which is now the Royal Court Theatre, was built within the short space of six weeks.

THE building of the new Westminster Cathedral is proceeding amid a chorus of complaints from the residents in the vicinity. There are a number of flats around Ashley Place, and for some months the dwellers therein have not had a single quiet moment, except at night and on Sundays. There is some talk of the local authorities being appealed to with the object of compelling the builders to moderate the nuisance. The complaints, of course, are not directed against the ordinary noises incidental to building operations, but principally against the continual stone-cutting by the steam-saws—work which, it is alleged, could easily be done elsewhere.

GREAT interest is still being shown in the Castle Hill controversy at Scarborough. The Marine Drive, which will cost something like £100,000, is being proceeded with very rapidly. Within the past three months the appearance of the hill on the north side has been quite transformed. By the 1st inst. more than 200ft. of wall, 18ft. high, or within 4ft. of the finished height, had been completed. Steam cranes and locomotives, with a small army of men, are engaged throughout the day, and every effort is being made to push forward the work before the advent of the "north-easters." The concrete blocks are made at the foot of the hill. The heaviest, which are used in the foundations, weigh about five tons each. While there has been much opposition to the construction of the drive, there have been many assurances that the work will be the means of preserving the hill, which during the last fifty years has been lessened by 3½ acres through the erosion of the sea.

THE work of executing the statue of the Queen which has been subscribed for by members of the Junior Constitutional Club in Piccadilly, in commemoration of the Diamond Jubilee, has been entrusted to Mr. Brock, R.A. The statue, which will represent Her Majesty a little over life-size, will probably be placed in the vestibule of the building. Lord Salisbury is president of the club, and occupied the chair not long since at one of the most successful house dinners ever held within its walls. He will probably be called upon to unveil the statue when it is ready. Those who take an interest in this branch of Art ought, when possible, to go the round of the best London clubs. Many fine pieces of statuary work are hidden away in dim corners at these places.

It is understood that Mr. Whistler has been approached by a syndicate with a view to arranging that all his work in this country shall pass exclusively through its hands. An agreement appears to have been come to, and there will shortly be opened a gallery, in the neighbourhood of Manchester Square, devoted entirely to Whistlerian Art. Admirers of the Artist's somewhat erratic genius will receive the information with satisfaction. A Whistler Gallery has long been desired.

FOR three centuries there existed over the monument of Cardinal Pole, in Canterbury Cathedral, a representation of the arms of the late prelate, supported by two angels, and the escutcheon being very historically interesting, the late Canon Jenkins, who was a great

authority on heraldry, proposed before his death that these arms, which contained sixteen quarterings, some of them of families which have since become extinct, should be repainted. It is this work which Cardinal Vaughan and the other Roman Catholic visitors of ten days since have undertaken to provide funds for, as a recognition of the kindly welcome and courtesy extended to them. The tomb will be left exactly as it is, simply being enriched by the reproduction of the arms. Canterbury Cathedral is probably one of the greatest museums of heraldry in the kingdom. No less than 800 coats of arms were put up by Archbishops Courtenay and Arundel in the cloisters, apart altogether from those all over the roofing of the nave.

A CONSIDERABLE amount of antiquarian interest attaches to the disappearance of the Brockley Jack, one of the oldest licensed houses in London, which is about to be pulled down. There is much more in the way of tradition than of actual history connected with this well-known house, but it is pretty generally accepted as fact that it has been in existence over 500 years. It is believed to have been erected during the closing years of the Plantagenets, and it was then, and for many years afterwards, the only house in the immediate neighbourhood, and stood a solitary sentinel by the side of the great road into Kent. Within the last five or six years the London, Chatham, and Dover Railway has conferred its questionable advantages on the neighbourhood, and a new suburb is springing up round this relic of the past. That settled the fate of the Brockley Jack. The custom remained, and, indeed, increased, and a fourteenth century building, which has had on occasions to be held together by artificial means, does not meet the requirements of the neighbourhood. Thus the oldest licensed house in the county of Kent is doomed, and within the next few weeks the irregular heap of mediæval buildings will be razed to the ground to make room for a palatial public-house on modern lines, which is to run a considerable distance into thousands of pounds in the matter of cost. From an architectural point of view this may be an improvement, and it will doubtless be more in keeping with its suburban surroundings, but one old landmark will be swept away and a connecting link with the past broken, and the new palace will be an even less effective reminder of the old Brockley Jack than the ridiculous griffin is of the imposing and dignified Temple Bar.

THE excavations at the recently-discovered "Romerkastell," near Holzhausen, in the district of Wiesbaden, have laid open four gates with their towers. Over the north-western gate, Porta Sinistra, a magnificent description in honour of Caracalla, of the year 213 A.D., has been deciphered. Traces of a large and not less splendid inscription have been found on the most stately of the four gates, the Porta Prætoria, but it is in too broken and fragmentary a condition to be deciphered. Numerous silver coins of Caracalla, Septimius, and Alexander Severus have come to light, all of which are in excellent preservation; a silver arm-ring, a primitive leaden arm-ring, fragments of glass vessels and of the so-called terra sigillata. In the neighbourhood of the Prætorium was found the broken head of a genius with the mural crown.

We have received a reprint of the annual sermon of the Church Sanitary Association, delivered in All Saints' Church, Tufnell Park, by the vicar, the Rev. W. J. Hocking, on August 1st. It is an eminently practical discourse, and full of plain speaking, as witness the following:—"Science is making it clearer and clearer every day that not only diseases, but a very large proportion of the deaths of the country, are attributable to causes which have been evolved out of things for which men are directly or indirectly responsible. It is, therefore, not only foolish piffle, but insulting ignorance, to say that the good God wills these things, and that we must resign ourselves to them." There is a mediæval simplicity and homeliness about these remarks

which go far to excuse the lapse into slang terms. We are in full accord with Mr. Hocking when he contends that dirt and disease are not part of the Divine order of things, and also that it is the duty of the Church to care for the bodies of men as well as their souls. Formerly she always did; the first hospital in London was a monastic establishment; it was the Church that drained fens, brought waste lands into cultivation, and taught people the advantage of living a healthy, regular life by rule. Even as late as the seventeenth century it was the Orthodox Church of the East which provided for the care and isolation of lepers, and every parish priest going in and out among his flock ought to impress upon its members the paramount necessity of cleanliness, and, as Mr. Hocking says, not be afraid to tell landlords when their property is in an insanitary condition. The simple laws of health and sanitation ought to form a part of the examination of every candidate for ordination, for amid unhealthy and filthy surroundings a healthy and moral mind is all but impossible.

AN interesting archaeological discovery has been made in Paris during the process of excavation for drainage purposes, the workmen having brought to light part of the wall erected by the once famous monarch, Philip Augustus. On these ruins was afterwards built a Chapel devoted to the Knights of the Order of Notre Dame de la Redemption des Captifs, an order founded in 1218 at Barcelona, conducted under Augustinian rules, and occupied solely with the ransoming and succour of mediæval prisoners of war. And now Barcelona is the headquarters of the Spanish Anarchists.

THE municipal engineering works of Manchester have on several occasions been of considerable magnitude, and in some instances even of a sensational character; but the results of the latest development of Manchester's engineering activity will be watched with an interest which has hardly been excelled by any of the previous undertakings. The Corporation of Manchester is proposing to go to Parliament to obtain powers to construct a conduit which shall convey the sewage of the town down the Mersey and discharge it into the river near the sea. The work is to cost something over a quarter of a million sterling—how much over that figure remains, of course, to be seen. The original estimate is for £258,000, though, as the Manchester Corporation, with the Ship Canal before its eyes, know only too well, original estimates are not always very stable foundations. The project has its interest for Bradford, for, whatever temporary expedients and experiments the Bradford Corporation may resort to, to deal with the sewage of the city, some such scheme in the future looms ever before it. Though Bradford is badly situated with regard to sewage disposal, Manchester, is, perhaps, rather worse, for it has not even a large river like the Aire into which to turn the effluent from its sewage works. It has, indeed, to discharge it into a canal, and as is obvious, it is almost impossible, whatever methods may be adopted, to turn out such an effluent as should be entirely satisfactory under those circumstances. The proposal is threatened by the opposition of Liverpool.

SOME of the brick houses in Battersea are turning from red to blue, causing the people to suspect some noxious influence in the air. Suspicion at first fell on neighbouring chemical works, the proprietors of which, however, protested their innocence. The medical officer of health (Dr. Kemp) was appealed to, and he was of opinion that the phenomenon was not due to fumes from the works in question. Admitting that sulphuretted hydrogen from sewers might give a bluish tinge to bricks originally red, he denied that the drains of the district gave forth that gas. The mystery is therefore complete, and the inhabitants of the district are not reassured. It is suggested that the change is due to the development of something in the bricks.

THE current exhibition of the Birmingham Society of Artists is this year unusually good, and although the number of works it contains is small, when compared with those in the larger displays of Liverpool and Manchester, exhibits are so varied that they represent nearly every phase of current British Art. Sir E. J. Poynter, P.R.A., contributes his "Horæ Serenæ"; and other important contributions are "May Morning on Magdalen Tower," by Holman Hunt; "The Close of Day," Peter Graham, R.A.; "The Dream of Launcelot," Sir E. Burne-Jones; "Hampstead's Happy Heath," David Murray, A.R.A.; besides characteristic examples by G. F. Watts, R.A.; Val Prinsep, R.A.; James Sant, R.A.; J. Aumonier; and Arthur Hacker, A.R.A. One of the most striking landscapes on the walls is Moffat Lindner's "Storm Cloud," which though severely simple in composition and restrained in colour, is at once both luminous and restful. "A Reverie," by Edward S. Harper, is noticeable for the richness of its colour scheme and the dexterity with which the most brilliant and varied hues have been wrought into a harmonious whole. C. T. Burt essays a new departure in "We Join the Chase," in which he has been successful. "Red Riding Hood," by Charles M. Gere, though well intentioned, fails to show the artist at his best. His little landscape studies, however, are charming. "A Tragic Sunset," by John Finnie, A.R.E., is a powerful piece of work, strong in colour and full of feeling, the contrast between the lurid light of the sunset and the gloom of the coming storm being admirably suggested. In quite a different spirit has John McDougal conceived his large water-colour "The Peace of Evening Crown a Golden Day."

MR. PRITCHARD, the civil engineer who has been instructed by the local authorities to inquire into the proposal for a new lock below Putney Bridge, reports that, owing to the removal of several bridges, the construction of embankments, and the dredging of the river bed, the surface level of the river at low water spring tides between Richmond and Strand-on-the-Green is receding an inch and a half a year. This, he holds, clearly shows that a weir across the river below Putney is necessary. The line he suggests as the most suitable for its construction is drawn from Broomhouse Dock Lane on the Middlesex side to a point directly opposite. The work would be both long and costly, a period of from three to four years and an expenditure of a quarter of a million being required for its execution. This, of course, is due to the width of the river, which at that point is more than double that at Richmond Lock, and to the depth of the water. Formidable as the undertaking appears, there can, however, be little doubt of its ultimate utility.

A RECENT issue of the Bulawayo Chronicle contains the following:—"Messrs. W. G. Neale and George Johnson returned some few days ago from an expedition, ranging over a wide stretch of country, which they undertook more for the purpose of exploring and locating undiscovered ruins than of working those already 'pegged out' by the Company. The country traversed, chiefly in the north, embraced the lower Shangani, the lower Umvumque, the lower Sebakque, the lower Gwelo, and the lower Inyati districts, most of these being unexplored before in search of ruins. In all, Messrs. Neale and Johnson located more than eighty-five "new" ruins, and one of them appears to be unique, and of quite exceptional interest from an archaeological point of view, as it differs entirely from any known to the discoverers, and they speak from a knowledge of upwards of 200. In shape alone this ruin resembles the celebrated Zimbabwe ruins, but the walls, which are perfectly intact, about 15in. thick and 15ft. high, seem to be made in a different way and of a new form of masonry. They do not consist of either bricks or tiles, but appear in one solid piece of glazed material, as if burned after they were erected in position. If this impression of the discoverers is borne out on re-examination, then we have a new method and material of

building hitherto alien to the country, and probably to be referred to a different race of people from the ordinary ancient workers. The ruin shows the remains of a well-shaped doorway, and also, which is an unusual feature, an aperture about 4ft. high and 3½ft. wide placed some distance up the wall, and which was without doubt a window. Altogether, the ruins are a proof that the original inhabitants were a people who had attained a high standard of excellence in the art of building. Some fine gold was found in the *débris*, but Messrs. Neale and Johnson were unable to properly explore the ruin owing to its distance from water. The tradition that there exists an extraordinary ruin in the country, the building of which still has in position massive stone doors, and which is regarded with superstition by the few natives who know of it, and whose doors have never been opened, Messrs. Neale and Johnson heard sufficient evidence of to regard as an actual fact, but owing to its being situated in a very unhealthy district, they have had to postpone visiting it for the present."

the district. It is curious to note that the square-capped pinnacles appearing in the sketch, which make so characteristic a feature in the south clerestory parapet, are in the north conspicuous by their absence. The disposition of the masses, and the masterly way in which the tracery, diaper work, and other details are conceived and executed, create an unusual richness of effect in sunlight, and a subdued, mysterious beauty in its absence. As a whole, the interior is unworthy of its envelope. The mannerism of straight lines, and an arbitrary symmetry of parts peculiar to the period, produces the irksome sameness of an unbroken ridge, and permits a grasp of the entire church at a glance. That these æsthetic conditions were not satisfactory to the builders is probably evidenced by the lavish thought and work expended on a rood-screen and loft of singular magnificence, judging from the remains left to us. The screen extends the whole width of the church, higher in the nave than the aisles. It was doubtless surmounted by lofty figures and a most probably much loftier cross, forming an effective break of

the foot of which is the entrance to the old bar-room, now used as an office, with the heavy main and smaller crossbeams of its low studded ceiling. From this a door leads directly into the small taproom, thence to the landlord's dining-room with its old mahogany sideboard and round table of the same material, its small window panes and wide empanelled fireplace. We next cross the rear of the hall to the old breakfast room, papered in the old large-figured style, and pass on into the long dining-hall. Here the beams above and the high wainscoting and woodwork of the sides are painted a pure white, while the walls and ceiling are a chocolate brown. On the floor above are several large bed-chambers with ancient furniture, and a large dance hall with brightly polished floor and large fireplaces at both ends. Long benches run from end to end on either side, and the quaintly papered walls reach the ceiling, not at an abrupt angle, but with a gentle curve, giving a gracefully arched effect to the room. Descending the stairs, we enter the parlour situated across the



SOUTHWOLD CHURCH. FROM A SKETCH BY JOHN W. RHODES.

APPARENTLY we shall have a statue of Cromwell before a site on which to erect it. This is a result of some of the recent discussions in Parliament, but for which probably a statue of the great Protector would not have been thought of. The statue is the work of Mr. Hamo Thornycroft, R.A.; but before it is erected on any ground that can be called national property, there will be some more fierce speeches from the extreme Tory wing in Parliament.

THE fine, early, perpendicular, flint and stone-faced church of Southwold is dedicated to St. Edmund. Uninterrupted views at all points can be had of its admirable proportions except from the East. The picturesqueness of this aspect, and the fact that the modern and irrelevant tracery of the east window is hidden by trees, suggested this point for a sketch. A sense of thankfulness is felt that the tower was left unfinished, and that its present proportions were not marred by the overloaded pinnacles and stepped embattling common in

pyramidal form in an otherwise somewhat monotonous vista. The original carved oak pulpit has been shockingly coloured within recent years. The font, south doors, and choir stalls are of the same date as the church—richly carved and interesting specimens of the period. Our illustration is from a sketch by John W. Rhodes.

AMONG the many public resorts of old New England few were better known or more frequented than the Red Horse Tavern of Sudbury, Mass., the famous Wayside Inn of Longfellow. Situated on the high road between Boston and towns to the southward, it was the resort of travellers of every rank and condition. The house is a large old-fashioned structure, with gambrel roof, huge chimneys, and square colonial porch at the entrance way. Entering the main door, we pass directly into the broad hall extending to the rear of the building. To the right is the long staircase leading to the hall above, at

hallway from the bar-room. It is a large, cheery room, yet dignified withal, a room where one can sit down solidly in a big old leather-bottomed chair, or recline on the arm of an elegantly made and delicately cushioned sofa of antique pattern. Opposite the front windows is the old fireplace, above which hangs the Howe coat of arms mentioned by Longfellow, and the window-panes on which Major Molineaux scratched his opinion concerning the quality of the drink sold at the Inn. It was around this now historic fireplace that Longfellow grouped the characters for his well-known poems.

SOME rare pictures adorn the walls of the famous Inn, and, indeed, the whole house is a veritable gallery of this sort. In the house are also many articles of historic interest, guns—and pistols of an ancient pattern, and swords which have done duty in old Indian wars, spinning-wheels, and irons, rare old furniture, and china,

Built about the year 1700, the Wayside Inn was the property of one David Howe, and according to Historian Hudson, of Sudbury, remained in the Howe family for a long term of years, passing successively through the hands of "Colonel Zeke," Adam, and "Squire Lyman, who was the bachelor landlord referred to by Longfellow in his tales. In the old days it was a flourishing house. Here in the long winter evenings gathered in the bar-room men of all conditions to exchange the news or discuss the politics of the day, the drover with slouch hat, long frock, and still longer whip, the farmer, the dandy, and the dignified squire, and many were the jests and mighty the long argument over a mug of home-brewed or a glass of Old Medford; or, again, the parlour and dining-rooms would be thronged with ladies and gentlemen in the evening dress of the period. Ladies with powdered hair and broad skirts, the gentlemen with knee breeches and swallow-tail coat, powdered wig and cocked hat, carried under the arm, while the walls of the old dance hall above re-echoed with the sound of moving feet gliding about the floor to the music of the old-time fiddler. Again in the long summer twilight, the seats under the old elms near the house would be filled with frequenters of the place, enjoying the cool evening air, laden with the perfume of the neighbouring fields, and filled with the sounds of lowing cattle and bleating flocks, voices of men, the chirp of frogs, or the distant cry of some belated bird. This is the Wayside Inn. Years have passed since its halls re-echoed with the song of the reveller, or the sound of the post-horn roused its inmates and announced the arrival of the morning stage. There it stands as in the olden time, but those who once thronged its halls now know it no more.

THE work of excavating the site of the Grey Friars Monastery within the grounds of Cardiff Castle, undertaken by the Marquess of Bute, and executed under the superintendence of Mr. C. B. Fowler, proceeds apace, and interesting discoveries have been made. Lord Bute has given orders for the removal of the whole of the accumulated earth, the dumpings of refuse by generations of Cardiffian scavengers, from the floor of the church of the monastery. At a depth of about 4ft. from the modern surface that floor was uncovered, and in the north aisle the stone foundation of a tomb was laid bare, with a portion of the stone plinth *in situ*. This tomb was found to contain the skeletons of two persons, and there is no doubt it is the burying-place of Sir William Flemming and Llewelyn Bren. Sir William Flemming was High Sheriff of Glamorgan in 1316, and Llewelyn Bren resided at Castell Coch, but held Caerphilly Castle in a military sense for the Earl de Clare. Edward II. sent an envoy to Glamorgan, and summoned Llewelyn to the presence of the King in London, giving him a guarantee of safety. Llewelyn went, and received a full pardon for his exploits, with 20,000 Welshmen, in knocking the Norman castles to pieces in all parts of the country. He returned to Cardiff with the King's pardon, but was apprehended by Sir William Flemming, who, with a fine disregard for the King's honour, hanged his prisoner in a building which stood between the present Royal Arcade and Great Frederick Street. When the news of the tragedy reached Edward II. he promptly signed the death-warrant of Sir William Flemming, and he was hanged on the spot where he had hung Llewelyn Bren. They were buried side by side, under a stone tomb, which was in existence about the year 1530. In addition to the tomb and its contents, there has been discovered at the Monastery the connecting passage between the church and the cloisters of the monastic buildings. Splendidly preserved arch-stones of the nave arcade have been unearthed, while on the south side several yards of the original floor have been laid bare, the joints of the tiles showing quite plainly, one of the tiles, representing the arms of England—three lions on a shield—being *in situ*. Several coins have been picked up, amongst them being a silver penny struck at York in the reign of Henry I. or II., a Dutch

coin of much later date, and an Abbey copper token of about the time of Henry V.

THERE is, after all, nothing like building land for money making—provided you have eyes capable of discerning the first tender green shoots of a good crop of that valuable plant known as unearned increment. Some five years ago a Cape Town gentleman named Moss, casting about him for an investment, was lucky enough to espy the financial possibilities of the barren sandy wastes known as the Cape Flats, lying between False and Table Bays. A good square block of these wastes he purchased for the modest sum of £600. Thanks to booming in Europe and troubles "up country," there has since been a remarkable gathering of population at Cape Town—of persons alike come "down" and going "up." The consequence is that property has gone up, and one item of Cape news to hand is that Mr. Moss's investment has just been valued at £30,000.

SOME months ago a considerable portion of the plaster on the north side of the tower of St. James' Church, Garlickhithe, was stripped off owing to the heat to which it was exposed by a fire on the opposite side of the street. Upon examination it was found that the original masonry of the tower remained practically intact, and that at some period the whole had been covered with plaster. The church tower stands at the western ending of the building in Garlick Hill. It contains three stories, the lowest containing a fine doorway, whilst the highest displays round headed windows with louvres. At the top are a cornice and a parapet, whilst above this, supported by a shallow dome, is a square lantern, which tapers to a ball and vane. The lower part of the lantern is ornamented with eight small columns, terminated with urns. The whole tower and steeple reaches to a height of 125ft. From the western face projects a clock, surrounded by a quaint old gilded figure of St. James. The present church and tower were rebuilt by Wren on the site of a former church, the foundation stone being laid in 1676, and the church opened in 1682. The total cost was upward of £5000. The plaster has been entirely stripped off the tower, and the masonry where necessary will be repaired. It is expected that the work of restoration will be finished in about six weeks time.

IN the course of the excavations which are being carried out at Furness Abbey, a bulla, or leaden seal, which must have come from Rome during the thirteenth century, was found in a perfect state of preservation at the south-western corner of the ruins, near where the great hall stood, and where the Bull to which it was attached was probably kept. It is almost circular in shape, about the size of a crown piece of the present day, but somewhat thicker. Five Bulls were received at the Cistercian establishment during the reign of Pope Innocent IV., and whilst William De Middleton was Abbot of Furness.

IT almost seems incredible that the official returns of the cost of our roads, just issued by the Local Government Board relate to the year 1894-95—in other words, they are two years old. Yet, being the latest issued, they are not devoid of interest. It appears from them that the expenditure of the highway authorities, excluding that defrayed out of loans, amounting during that year to £1,859,608. The loans raised by highway authorities during the year amounted to £12,995. The total rateable value of the highway districts and separate highway parishes was £52,416,358. The total amount of highway rates raised during the year—namely, £1,409,222—would be equivalent to an average charge of 6s. in the £ on this rateable value. The highway rates raised during the previous year were equal to an average charge of 6s. in the £ on the rateable value, in 1892-93 to 6s. 7d. in the £, in 1891-92 to 6s. 1d. in the £, in 1890-91 to 6s. in the £, and in 1889-90 to 6s. 4d. in the £. In 1888-89, the last year before the whole cost of the maintenance of main roads was

thrown on the County Councils by the Local Government Act, 1888, the average rate was 7s. 1d. The aggregate length of the roads under the supervision of Highway Boards and Surveyors of Highways in England and Wales, excluding 15,274 miles of main roads, the repairs of which had been undertaken by the County Councils themselves, was 104,258 miles, comprising 6262 miles of main roads, and 97,996 miles of ordinary highways. The number of miles of main roads repaired by the County Councils themselves, not included in the foregoing figures, was 5088 in 1889-90; 11,555 in 1890-91; 13,354 in 1891-92; 13,799 in 1892-93; 14,697 in 1893-94; and 15,274 in 1894-95.

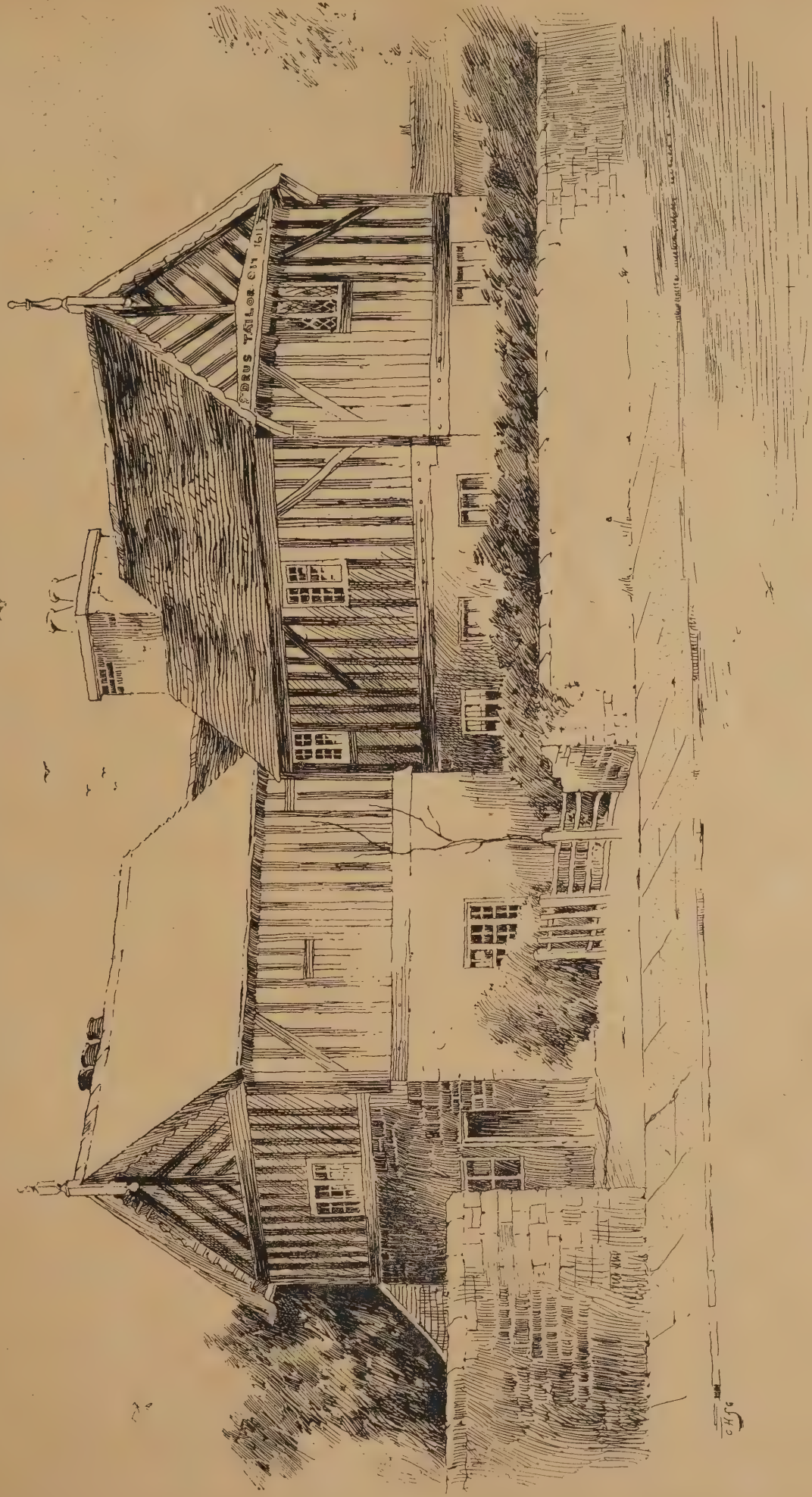
DUMFRIES ACADEMY.

THE handsome buildings of the new Dumfries Academy, which have been in course of erection for more than a year, have now been completed. The Academy now forms one of the most handsome structures in the district, and it stands in the centre of a clear space, formed by the surrounding playground and the ornamental grounds in front. The site of the new buildings is the same as has been occupied by the Academy since the year 1802. The front of the new Academy is of an elaborate and ornate character. It is distinguished by an imposing portico, formed by a row of four massive Ionic columns, 30ft. in height, and 3ft. 6in. in diameter at the base, with corresponding pilasters on the face of the building, the columns being an exact copy of those in the Erechtheum, Athens. Surmounting the building is a heavy stone dome, supported by four winged lions set diagonally. Over all is a gilded figure symbolical of learning, cut in Indian teak, and 6ft. 6in. in height, the hand and the torch which it bears adding another 18in. Small panels under the windows of the upper floor bear symbolic sculpture, commerce being indicated by a Roman galley, weights, and balance; architecture, by a classical Ionic capital, a decorated Gothic window-head, and tracery; plenty, by a cornucopia, a sheaf of wheat, and a cluster of fruit; music, by Pan pipes and reeds; painting, by a laurel wreath, palette, and brushes; science, by the globe, retorts, and electrical apparatus; astronomy, by the telescopes, &c.; and justice, by the tablets of the law and two hands, each bearing a sword. The total frontage of the building is 132ft. and it extends back 112ft. The front entrance leads into the spacious central examination hall, from which direct access is gained to all the rooms. It is 60ft. in length by 45ft. wide, and with a height of 38ft. from floor to ceiling. The doors from the rooms on the upper floor open on to a gallery 6ft. wide, carried on steel cantilevers. The gas lighting of the hall is provided for by twelve handsome brass pendants of special design, each with a dozen jets, and by several wall brackets. The science rooms are to the front, and comprise a lecture theatre 34ft. by 24ft., having accommodation for 80 students; a laboratory, 30ft. 6in. by 22ft.; and a preparation room. The Art department comprises a drawing-master's room, measuring 17ft. by 13ft.; an elementary drawing room, 33ft. by 22ft.; a cast or antique room, 30ft. by 22ft.; with model dressing-room attached. A square block in the rear of the main building contains the technical workshops and the gymnasium. The gymnasium is 45ft. long by 20ft. wide, and 22ft. in height. It is fitted up with a complete set of apparatus for physical exercises, and fencing, Indian club exercises, &c., will be taught by Pipe-Major Anceel, the drill instructor. There are two workshops—one for instruction in carpentry, and the other for instruction in metal work. The total cost of the buildings, excluding the gas fittings contract, and one or two other items, is put at £13,628; and to this sum also there falls to be added the architect's (Mr. F. C. J. Carruthers) fees, and the charges for clerk of works and measurers. But there are already signs that the undertaking is to meet with entire success. The formality of declaring the building open was performed by Sir Robert Reid, Q.C., M.P., a few days ago.

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PONTEFRACT. OLD HALL. FROM A SKETCH BY R. A. EASDALE.



OLD HOUSES, OULTON, NEAR LEEDS. FROM A SKETCH BY R. A. EASDALE.

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Surveying and Sanitary SUPPLEMENT.

SEPTEMBER 29TH, 1897.

The Sanitary Congress at Leeds.

(BY A SPECIAL CORRESPONDENT.)

THE various proceedings of the Sanitary Congress proper have been reported at unusual length in the daily press, and do not consequently need detailed repetition in these pages; but there are one or two points which may perhaps be discussed with advantage. On the opening day of the Congress a point debated by several speakers was the question as to whether, by the present preservation of sickly lives, we are not even propagating a sickening race of people. Another interesting portion of the President's address was that which refers to the "monotony of Labour," which he claims is greatly contributed to by the attempts of certain sections of the people to enforce the condition "for each workman to be paid the same wage whether he work well or ill, whether he be clever or stupid, skilful or clumsy, industrious or idle," and this he claims acts injuriously on the individual because it takes away one of the most potent stimulants in life. The President also contended that no properly instructed person in these enlightened days would dream of taking a house without a thorough inspection of and report on its sanitary arrangements. Whilst agreeing with the wisdom of these precautions, I must confess that I still know of a number of improperly instructed persons now going about. Later on, Dr. Farquharson quoted from one of Dr. Corfield's works, which rather confirms my views. The Professor says: "Sometimes the members of a family in a country-house have found that, so far from getting refreshed and invigorated by their visit to the country, they have always felt depressed and weakened and generally out of sorts during their stay there, more especially those members of the family that spend most of their time inside the house." The question of river pollution, discussed on the second day, is one especially important to Leeds. To many persons who are more than tyros on this question, the finding of a practicable remedy for the

POLLUTION OF THE RIVER AIRE, and similarly-polluted streams, appears to be hopeless. Major Flower, in his opening address on the subject, maintained that there was not a single trade pollution for which there was not a remedy, and that if these remedies were used the treatment of sewage would be greatly facilitated. On Wednesday and Thursday, in the Methodist Hall, Woodhouse Lane, a ladies' conference, on "Domestic Hygiene," was held. The employment of

ladies as gardeners and sanitary inspectors was strongly advocated, and it was stated, in reference to the former, that nearly one hundred women had passed through a special training at the Swanley Horticultural College, and that most of these had afterwards obtained employment either as gardeners or teachers in public institutions. Amongst other interesting papers in this section were those entitled "Women as Teachers of Hygiene," and "Health in Infant Schools." During the week excursions were made to the works of the Leeds Fireclay Company, Wortley; to Burmantofts, the Meanwood Road Destructor, the Sewage Works at Knostrop, the Electric Generating Station at Crown Point, the Farnley Iron Company's Works, Black Dike Mills, the Shildon Head Brewery, and the Queensbury Sewage Works; whilst the Union Street Baths, the New Medical School, and the Yorkshire College were all visited by large deputations from the Congress. Many other large manufacturers of the city, in addition to those above-mentioned, made arrangements for their works and factories to be accessible to such members as desired to inspect them, and it is needless to say that this concession was made use of by a large number of the more scientifically inclined. On Friday night probably, in order that the citizens should not feel themselves neglected by their visitors, Dr. Brobbyer, Medical Officer of Health of Nottingham, delivered a "popular" lecture on "Some Essentials of Popular Hygiene." The many subjects he touched upon principally had bearing upon domestic and dietetic matters. After an exceptionally heavy programme the Congress was brought to a close by a general meeting of the members in the council chamber of the Town Hall on Friday night, when the President (Dr. Farquharson) presided. The arrangements during the week for the entertainment of the members were well worthy of the reputation held by Yorkshire for hospitality. Consideration of the objects and aims of the Sanitary Institute and its kindred bodies, as set forth in the papers in the most varied subjects that were read at the Congress during the past week, enables one to partially realise the vast extent of ground now covered by modern hygiene, or as it is now, more often termed "Preventive Medicine." This partial realisation of its scope, however, causes me to re-echo the suggestion made by the President of the Congress in his inaugural address, that the time is now ripe for the constitution of

A SEPARATE DEPARTMENT OF STATE, to be known as the Board of Health, and the first duties of this Board should be the proper co-ordination into one harmonious whole of the present very scattered threads of sanitary legislation, and the sifting of the wheat out of the chaff from the many ideal suggestions in

connection with hygienic matters with which we are now well-nigh overwhelmed. Great thanks for the wonderful development of sanitation, and also for the partial education of the public in the many-sided subjects connected therewith, is honestly due to the council and management of the Sanitary Institute, and with this in mind I cannot refrain from saying that it would afford members the greatest satisfaction to learn that there is even some probability of this body changing its present home for a more imposing edifice than it at present possesses, and which certainly is hardly worthy of the present exalted status accorded to the Institute in its sanitary mission by most authorities at home and abroad.

THE HEALTH EXHIBITION.

It is part of the province of the Sanitary Institute not only to promote the advancement of sanitary science through lectures, examinations, a journal, museum, and library provided for its members, but to diffuse knowledge by means of what is aptly termed a Health Exhibition. In this way the general public are first interested, and then instructed. The present Exhibition, which will be continued until October 9, must prove of a high educational value. Even those who are the least informed on such matters should be able, almost at a glance, to learn something useful concerning the progress effected in sanitary engineering during the past half century. The biggest and best-known firms are represented by specimens of the most modern invention, and in many instances appliances are shown in actual operation. For the housing of the various exhibits a temporary structure has been erected on the Engineer Volunteers' drill-ground in Camp Road. Of the four sections into which the undertaking is divided, probably none attracted more attention than that devoted to the science of sanitation pure and simple. In this category may be mentioned a commodious lecture-room at the right-hand top corner of the building, where demonstrations with the aid of a magic lantern and other apparatus were given. Most striking of all is a model hospital, situated immediately on the right of the entrance. This is a corrugated iron edifice, measuring some 70ft. in length by 25ft. in width, partitioned into three lofty rooms, each of which is lined with match-boards and felt, and ventilated upon

THE MOST IMPROVED PRINCIPLES.

One of the rooms partakes of the nature of a hospital ward. It accommodates five Lawson-Tait beds of various kinds, properly fitted up. The general exhibits are displayed upon nearly 150 stands, and, in addition to these,

a number of articles on loan and not for competition may be noticed. Of special interest to municipalities and local authorities is the department known as "Section B." The most recent thing in ash-pits, for example, comes under this head, and the several methods of sewage treatment are an important feature. Models and diagrams of the latter are shown, together with specimens of effluents analytically and chemically treated. A considerable amount of space is taken up by exhibitors of bulky plumbers' material and ware for drainage and sewerage purposes. Sewage lifts are some of the contrivances to be seen at work. One of them, in model form, is the Shone pneumatic ejector, designed to lift sewage automatically from a low level, and thus to enable engineers to be independent of levels altogether, no matter what country they are called upon to work in. The Defries filters for waterworks are also notable objects, and the same people are exhibiting an apparatus for sterilising linen fouled by disease. Earth closets, enamelled lavatory and bath ware, flush tanks, hospital sinks, railway sanitary appliances, lead and art metal work, a patent air purifying screen, heating and ventilating methods, chemical exhibits, gas engines, laundry appliances, ambulance vehicles, systems of disinfecting and concoctions of all kinds for use therein, are some of the many other things to be shown. The subject of domestic economy is also remembered. Improved fireplaces and a variety of articles, whose virtue is the bettering of conditions in the home, have not failed to attract scrutiny. The exhibitors assure us that good business is being done, and that, from their point of view, Newcastle, the scene of last year's Exhibition, does not approach Leeds. It must be admitted that the Leeds firms have done well at the Exhibition.

MESSRS. ADAMS AND CO.

in particular have contributed a fine exhibit, not for competition, of their sanitary fittings, closets, and flushing apparatus. Messrs. Adams show also their patent sewage lift, far reaching, whilst a closet of a character suited to Oriental requirements and customs indicates how widespread and far reaching are the operations of the firm. A much appreciated boon is the provision by this firm of the gentlemen's lavatory.

MESSRS. AMES AND CRASTA,

of Nottingham, show their patent reliable self-adjusting pipe-joint, as well as a variety of improved manhole covers, capable of being used either as ventilating or closed covers by a very simple but most effective device.

THE PATENT GULLY COMPANY LTD., also of Nottingham, has been awarded a bronze medal for Crasta's patent surface-water gullies, a contrivance by which deleterious matter can pass into the sewers from the street gullies.

MESSRS. SHANKS AND CO.,

of Barrhead, have the largest show in the Exhibition, and have provided a good object lesson by showing some of the earliest forms of what has become, in its final evolution (if, indeed, it be yet final), their almost perfect "Barrhead syphonic closet." This firm's "Fin de Siècle" bath has won a silver medal, and certainly it is a most temptingly luxurious article, complete in every possible requirement.

MESSRS. DOULTON

are near neighbours of Messrs. Shanks, and very notable neighbours too. Their new "Ellison's Patent O.B. Closet" is to be specially tried, and is marked accordingly "Deferred for practical trial." This firm supply the ladies' lavatory at the Exhibition.

THE BLACKMAN VENTILATING COMPANY LIMITED

has its fans shown at Stand 112, and receives no small amount of attention, which is not remarkable in these days of ventilating systems.

THE LEEDS FIRECLAY COMPANY LTD. has a fine display of the goods produced by the six old-established firms whose amalgamation formed the Company. Baths and lavatory

fittings figure prominently, and a very imposing effect is made by a group of Burmantoft's vases and wall decorations in Burmantoft's faience, for which a silver medal was given. Glazed bricks, tiles, grease-traps, drain pipes, pipe-joints, testify to the wide field covered by the operations of the Company as fireclay workers. It may also be noted that the Company owns and works its own mines of fireclay, both in Leeds and elsewhere. The Company receives no less than six bronze medals, besides the silver medal already referred to.

THE FARNLEY IRON COMPANY LTD.

has a stand showing its sanitary ware, and the famous Farnley glazed bricks, the reputation of which is American as well as British, the bricks being employed in some of the New York "sky-scrapers." Bronze medals were awarded to the Company for white and coloured glazed bricks, and for enamelled bath and fireclay sinks.

MESSRS. DUCKETT AND SONS

exhibit their latrines, automatic flushing tanks, closets, &c., and a variety of sanitary appliances in brown glazed ware.

MESSRS. CAMERON, COMMINS, AND MARTIN,

of Exeter, have a model at Stand 12, showing the working of a septic tank system of sewage treatment. Samples of treated sewage and diagrams assist the investigator, and it is certain that the inventors have used their space to the best possible advantage in providing this practical demonstration of their system.

MESSRS. SISSONS BROS. AND CO. LTD.

of Hull, exhibit Hall's sanitary washable distemper, a new patent water paint. One of the features of this new paint is specially noteworthy: it is claimed that white ceilings coated with it will not turn black with sulphur, as it contains no lead, and will never crack or fall off. When we add that it destroys vermin, it is evident that the article has a great future before it.

MESSRS. HALL AND BOARDMAN

represent the staple industry of Swadlincote, with a variety of sanitary ware; upon which is placed the intimation that the goods are ordinary stock, and are not made specially for exhibition purposes. The principle is as creditable to the firm as the goods to which it is applied.

DAY'S AUTOMATIC WASTE WATER CLOSET COMPANY,

of Wolverhampton, shows its speciality, the "Stafford closet," which has been adopted by the Stafford Corporation.

LIST OF AWARDS.

The following is a complete list of awards that have been made by the judges:—

SILVER MEDALS.—Blackman Ventilating Co. Ltd., 63, Fore Street, E.C., for coke screen for ventilating purposes; Cadbury Bros., Bournville, Birmingham, cocoa; F. C. Calvert and Co., Bradford, Manchester, pure carbolic acid; Davis Gas Stove Co. Ltd., 200, Camberwell Road, S.E., "Metropolitan" gas cooker; J. Defries and Sons Ltd., 147, Houndsditch, E.C., Pasteur-Chamberland domestic filter, and also for portable hot spray disinfectant; Expanded Metal Co. Ltd., 39, Upper Thames Street, E.C., expanded metal; the Ferrybridge Foundry Co., Ferrybridge, Yorkshire, Fryston duplex fire kitchener; J. S. Fry and Sons Ltd., Bristol, cocoa; Hughes and Lancaster, 47, Victoria Street, S.W., Shone's hydro-pneumatic ejector; Jas. Milne and Son Ltd., 48, Wellington Street, Leeds, "Instantan" grip fire hose connection; Leeds Fireclay Co. Ltd., Leeds, wall decorations in Burmantoft's faience; Reynolds and Branson, 14, Commercial Street, Leeds, apparatus for analysis of air, water, food, &c.; Shanks and Co., Barrhead, N.B., "Fin de Siècle" bath.

BRONZE MEDALS.—Cannon Hallow Ware Co., Deepfields, near Bilston, Staffordshire, enamelled cast-iron, and also for Hercules gas

cooker; the Cordelova Co. Ltd., 74, Pitt Street, Edinburgh, Cordelova wall coverings; Cloughton Brothers, Bramley, Leeds, the "Niagara" water-waste preventor; S. Dixon and Son, 31 to 41, Swinegate, Leeds, incandescent arc outside lamp; Alfred Dougill and Co. Ltd., 36, Great George Street, Leeds, gas engine convertible into oil engine; Jas. Duckett and Sons Ltd., Sanitary Ware Works, Burnley, Lancashire, "Clencher" washdown closet; Farnley Iron Co., Farnley Works, Leeds, white and coloured glazed bricks, and also for white enamelled fireclay bath without fittings, and white enamelled fireclay sinks without fittings; Ferrybridge Foundry Co., Ferrybridge, Yorkshire, Fryston lifting fire kitchener; William Gooding, North Road Works, Metropolitan Cattle Market, Islington, N., combined safety valve and fusible plug, and also for interchangeable rubber stair treads; Henry Jackson, 134, Westfield Road, Leeds, self-feeding circulating boiler; John Jones, 40, Sydney Street, Chelsea, S.W., releasable stopper for cleaning arm of disconnecting trap; Leeds Art Pottery and Tile Co., Leathley Road, Hunslet, Leeds, faience tile dados; Leeds Fireclay Co. Ltd., Leeds, glazed bricks, and also for Shoppee's dovetail bricks, Tiltman's division bricks, vitreous glazed terra cotta, white enamelled fireclay bath without fittings, and white enamelled fireclay sink without fittings; Richard Mason, Hemsworth, near Wakefield, reversible window and fanlight; Mellin's Food Ltd., Marlborough Works, Stafford Street, Peckham, London, S.E., Mellin's food for invalids; Jas. Milne and Son Ltd., 48, Wellington Street, Leeds, sink waste fittings, and also for upright combination bath fittings, with large outlets; New Patent Broom Co., Paragon Works, Stoke Newington, London, N., Paragon bass brooms; Noble, Brown, and Co., Nobro Works, Firth Street, Leeds, Nobro portable fire pump; Patent Gully Co. Ltd., St. Peter's Church Walk, Nottingham, Crosta's iron road gullies; Price's Patent Candle Co. Ltd., Belmont Works, Battersea, London, S.W., pure glycerine; R. H. Quine, 1, Leaf Square, Pendleton, Manchester, sanitary ashbin; John Russell and Co. Ltd., 15, Wellington Street, Leeds, wrought iron and steel tubes, and also for cup fittings for incandescent gas lamps; Teal and Somers, Leeds, raised hearth and sunk fire; Vimbos Ltd., 13c, Queen Victoria Street, London, E.C., Vimbos fluid beef; E. Walker and Co., Heckmondwike, Yorkshire, Walker's block tin lined iron pipe; Whiteley Exerciser Ltd., 21 and 22, Laurence Pountney Lane, Cannon Street, E.C., health exerciser; Wilson and Stockall, Bury, Lancashire, accident ambulance carriage.

DEFERRED FOR PRACTICAL TRIAL.—Cameron, Commins, and Martin, 7, Bedford Circus, Exeter, for septic tank system of sewage treatment; R. Clark and Co., Milton Works, Heckmondwike, "Eureka" lead incased block tin water pipe; Abraham Thomas Cooper, 92, Moray Road, London, N., Cooper's suction and vacuum pump; Davis Gas Stove Co. Ltd., 200, Camberwell Road, S.E., open ventilating gas fire; Alfred Dougill and Co. Ltd., 36, Great George Street, Leeds, Tornado air propeller; Doulton and Co., Lambeth, S.E., "Ellison's" O.B. closet; Formalin Hygienic Co., 9 and 10, St. Mary-at-Hill, London, E.C., "The Alformant"; Formalin Hygienic Co., 9 and 10, St. Mary-at-Hill, London, E.C., "Formalin"; Hughes and Lancaster, 47, Victoria Street, S.W., Fischer stone filters; Irving, Son, and Jones, 23, Blackstock Street, Liverpool, Manhu Gluten flour; George Jennings, Lambeth Palace Road, S.E., Duplex supply and sanitary waste valves for lavatories; George Jennings, Lambeth Palace Road, S.E., Duplex supply and sanitary waste valves for baths; Jeyes' Sanitary Compounds Co. Ltd., 64, Cannon Street, E.C., formogenic auto-clave; John Jones, 40, Sydney Street, Chelsea, London, S.W., automatic flushing cistern for urinals; John Jones, 40, Sydney Street, Chelsea, London, S.W., ball valves; B. Kuhn, 36, St. Mary-at-Hill, London, E.C., "Chinosol"; Manchester Gas Cooker Ltd., Albert Works, Huddersfield, gas governor; Richmond and Co. Ltd., Warrington, Gulf Stream geyser; Sissons Bros. and Co. Ltd., Sculcoats, Hull, sanitary washable distemper; J. Stott

and Co., Vernon Works, Oldham, electric motor dynamo; Torpedo Ventilator Co., 32, Eyre Street, Sheffield, torpedo ventilators; United Alkali Co., Exchange Buildings, Liverpool, hypochlorite of soda solution; Valveless Syphon Co., Kirkstall, Leeds, Waterwitch ball valves; E. Walker and Co., Heckmondwike, Walker's aluminium-lined pipes; E. Walker and Co., Heckmondwike, frost-resisting pipes; Washington Lyon, 85, Asylum Road, Peckham, S.E., steam disinfectant.

LETTERS OF THANKS OR RECOGNITION.—Adams and Co., Park Lane Works, Leeds, gentlemen's lavatory; Blind Institution, Leeds, baskets and brushes; British Institute of Preventive Medicine, 74, Great Russell Street, London, S.W., cultivation of bacteria; Cloughton Bros., Bramley, Leeds, ornamental lead work; Doulton and Co., Lambeth, London, S.E., ladies' lavatory; Reynolds and Branson, 14, Commercial Street, Leeds, exhibit of models, diagrams, lantern slides, and apparatus in relation to physiology; Shanks and Co., Tubal Works, Barrhead, N.B., specimens of old defective work.

THE sewage outfall at Fisher's Nose is approaching completion, and Plymouth will shortly be able to congratulate itself upon the fact that one portion of its drainage scheme is finished. It will not be a day to soon. Where the sewage is now discharged we do not know, but certainly the whole neighbourhood of the Barbican, from the new Fish Market to Phoenix Wharf, is permeated by most offensive odours, while at low tide the water in the vicinity of the wharf appears to be little better than sewage. People who live in the neighbourhood or carry on business there must have got pretty well inured to the dreadful smells, or they would long since have risen in protest against the nuisance. We wish them a happy issue out of the infliction.

Surveying and Sanitary Notes.

MR. STOTT, Medical Officer of Health, has prepared an interesting report on a new system of dealing with sewage which has been started at Exeter. The Hayward's Heath Council has commissioned Mr. Baldwin Latham to report on the best way to deal with the sewage of Hayward's Heath, and in the meantime had asked Dr. Stott for his opinion on the Septic system, in which microbes perform a very important part. The value of the system, from the Hayward's Heath point of view, was the small area of ground required for the works. Mr. Stott would not recommend the Exeter system, it being in an experimental stage, and was seemingly more inclined to favour the systems in use at Friern Barnet and Sutton, where the microbes were permitted to do their work in the open rather than in the closed chamber, as in the Exeter system. A pointed question was put to the Medical Officer as to how near houses could be built to the microbe "industrial home." The answer was to the effect that houses were quite close, and Mr. Stott made the astonishing statement that near a sewage farm there was more ozone than at Brighton.

THE Collector of Poona recently appointed Surgeon-Major Barry to investigate the sanitary condition of the city of Poona, and a very long report from that officer has now been published. It discloses an extraordinary condition of affairs. It opens by stating that under its present municipality the city has fallen "into the groove of chaos, of incompetence, inefficiency, waste, absence of check, and wanton disregard of public obligations

towards the poorer class of citizens." Dr. Barry deals with his subject under fourteen heads; but only very few of these can be mentioned here. The night soil has to be removed in carts through public thoroughfares over three miles from the city to the poudrette factory, and it is therefore "important that the carts should be in first-class working order, not liable to break down, outwardly clean, and with valve fittings calculated to stop effluvia." Dr. Barry examined the carts in every single depot, and called in the collector to witness the accuracy of his statements. He found that not one cart was in working order, and he mentions cases where full carts have broken down in the streets and been allowed to remain for days without removal. Owing to neglect in emptying cesspools and other neglects, which Dr. Barry mentions in detail, he describes Poona as lying on a bed of sewage; the surface gutters are a mere device to hide filth; rubbish was not removed, and it was a common occurrence to find the dustbins overflowing and surrounded by a rampart of filth which was not removed for four or five days together; the number of dustbins was not half what it should be; all the open places of the city were laid out in filth; the back lanes seem to have never been inspected. The wealthy quarters are nearly as bad as the poor ones. "A walk down Sadashiv Peth, our local Belgravia, is a liberal education in Oriental hygiene—light minus sweetness;" and he describes some of the abominations amongst which wealthy and influential natives seem content to live. He mentions that he has seen the city engineer's men seeking for an obstruction by digging up the public thoroughfares, and not merely failing to find the obstruction, but failing to hit on the drain at all! Indeed, both the health officer and the engineer of the municipality fare very badly at Dr. Barry's hands.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Oct. 1	Redditch, Wales—Police Station Buildings	County Council	County Surveyor, Pierpoint-street, Worcester.
" 1	Arklow, Ireland—Residence and Dispensary	Guardians of Rathdrum Union	R. Howard, J.P., Main-street, Arklow.
" 1	Rathdrum, Ireland—Boarding Floor	Guardians	B. Manning, Clerk, Board-room, Workhouse.
" 1	Southampton—Boiler House and Chimney Shaft	Guardians	Mitchell, Son, & Gutteridge, 9, Portland-st., Southampton.
" 1	Derby—Extensions	Midland Railway	Company's Architect, Cavendish-house, Derby.
" 2	Brentwood—Boiler House, &c.	Governors of Asylum	Medical Superintendent at the Asylum.
" 2	Hawarden—County School	Select Vestry	Grayson and Ould, 31, James-street, Liverpool.
" 2	Magheragall, Ireland—Church Alterations	Freehold Land Society	J. Simpson, Millbank, Brookmount.
" 2	Walton, near Felixstowe—Shop and House	War Department	Society's Offices, Princes-street, Ipswich.
" 2	Aldershot—Dust Destructor, &c., at Norris Bridge	War Department	Royal Engineer Office, North Aldershot.
" 2	Aldershot—Alterations, &c., to Surface Drainage, Marlborough Lines	Great Northern Railway Co., Ireland	T. Morrison, Sec., Amiens-street terminus, Dublin.
" 4	Banbridge, Ireland—Station Master's Office, Roofs, &c.	Guardians	Jackson and Fox, 23, George-street, Halifax.
" 4	Halifax—Drapery Warehouse, &c.	Bala and Festiniog Railway Company	H. List, Clerk, Union Offices, Mayday-rd., Thornton Heath.
" 4	Croydon—Infirmary Repairs	Rotherhithe Vestry	Station Master, Bala Station.
" 4	Frongoch, Wales—Cottage	School Board	N. Scorgie, Surveyor, Town Hall, Rotherhithe.
" 4	London, E.C.—Chimney Shaft	Great Northern Railway Co., Ireland	G. Kenshole, 26, Duffryn-terrace, New Tredegar.
" 4	New Tredegar—Six Houses	London County Council	A. P. Lindsell, Clerk, Writtle.
" 4	Writtle, Essex—Highwood School Class-room	Guardians	T. Morrison, Secretary, Amiens-street, Terminus, Dublin.
" 4	Clones—Platform Roofs	Corporation	Architect's Department, 17, Pall Mall East, S.W.
" 5	Bethnal Green—Band Stand, &c.	Coombs and Co. Limited, Brewers	A. F. Mant, Clerk, Petworth.
" 5	Petworth—Workhouse Alterations	South Berks Brewery Company	R. C. Merson, Architect, Hollybank, Yelverton.
" 5	Princetown, Devon—Farmhouse, &c., Laffer Hole	School Board	W. C. Williams, 29, Southgate, Halifax.
" 6	Halifax—School	Urban District Council	J. S. Crawshaw, Surveyor, Weybridge.
" 6	Weybridge—Stables	Guardians	G. T. Wilson, 121, Durham-road, Blackhill.
" 6	Lancaster—Laundry	Wandsworth and Capham Union	T. W. Aldwinckle, 1, Victoria-street, S.W.
" 6	London, S.W.—Laundry	Infirmary Governors	Secretary, Grand Jury Office, Court House, Sigo.
" 7	Sligo—Pumping House Floor and Door	Corporation	City Surveyor, Belfast.
" 7	Belfast—Central Police Station, &c.	Coombs and Co. Limited, Brewers	T. Martin, Surveyor, Radstock.
" 7	Radstock, Somerset—Roof and Premises (2 Contracts)	School Board	J. H. Money, Architect, The Broadway, Newbury.
" 7	Newbury—Additions	Commissioners	Lansdowne and Griggs, Architects, Newport, Mon.
" 9	Blaenavon, Mon.—Class-room	Ystradyfodwg School Board	H. Williams, Secretary, Customs House, Dublin.
" 9	Mullingar, Ireland—Asylum Additions	London County Council	J. Rees, Hillside Cottage, Pentre.
" 11	Porth, Wales—School Alterations	Urban District Council	Engineer's Department, Spring-gardens, S.W.
" 12	North Woolwich—Building for Stores and Offices	Metropolitan Asylums Board	Young and Brown, 7, Southampton-st., Bloomsbury-square.
" 13	Enfield—Hospital	Godstone Union	T. D. Mann, Clerk, Norfolk House, Norfolk-st., Strand, W.C.
" 13	Haverstock Hill, N.W.—Porter's Lodge at Hospital	Corporation	T. Elliff, Caterham, Surrey.
" 15	Bletchingley—Workhouse Alterations	Guardians	E. Thomas and Son, 7, Queen Anne's-gate, S.W.
" 21	Belfast—City Hall	A. B. Wilkinson	Union House, Winchfield.
" 22	Winchfield—Cottage Home	D. J. Lanigan	J. Eaton, Sons, & Cantrell, Stamford-st., Ashton-under-Lyne.
No date.	Ashton-under-Lyne—Cottages		Ambler and Bowman, 9, Park-place, Leeds.
"	Armley—Two Houses, Whingate		T. Pentland, 35, High-street, Belfast.
"	Belfast—Villa Residence		C. W. Lambert, 39, Wingate, Armley.
"	Halton—Four Houses, Graveleythorpe		T. Peckett, 19, Wood-road, Hillsborough.
"	Hillsborough, Yorks.—Two Houses		J. Kassell, Architect, Kirkby Lonsdale.
"	Kirkby Lonsdale—Hotel Alterations, &c.		W. S. Braithwaite, Architect, School Board Offices, Leeds.
"	Leeds—Caretaker's House		W. W. Fookes, Surveyor, Wareham.
"	Moreton, Dorset—Footbridge		G. F. Aveline, Estate Office, Central Station.
"	Preston—Sixteen Houses		E. B. Pratt, County Bank House, Elgin.
"	Roths, Scotland—Town Hall		Ambler and Bowman, 9, Park-place, Leeds.
"	Roundhay, near Leeds—Detached Houses		J. Eaton, Sons, & Cantrell, Stamford-st., Ashton-under-Lyne.
"	Stalybridge—Club (two contracts)		Margrave and Peacock, Metal-exchange, Swansea.
"	Swansea—Alterations, &c.		H. Harper, Tavistock-chambers, Market-place, Nottingham.
"	Skegness—Pair of Villas		Royal Engineer's Office, North Aldershot.
"	Aldershot—Dust Destructor and Chimney		G. H. Wood, Secretary and Manager, Douglas.
"	Port St. Mary—Station, &c.		J. H. Money, Architect, The Broadway, Newbury.
"	Newbury—Offices, &c.		

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
ENGINEERING—			
Oct. 2	Plymouth—Tramway Engineering Works (2 Contracts)	Corporation	J. H. Rider, Electrical Engineer, East-street, Plymouth.
" 2	Dartmouth—Flushing Tank, &c.	Corporation	T. O. Veale, Borough Surveyor, Town Hall, Dartmouth.
" 4	Axbridge—Water Pipes	Union Rural District Council	A. Powell, 3, Unity-street, College-green, Bristol.
" 4	Lisburn and Clones—Steel Girder Bridges	Great Northern Railway Co., Ireland	Engineer-in-Chief, Amiens-street, Dublin.
" 4	Islington—Stables and Water-softening Plant	Vestry	J. P. Barber, Vestry Hall, Islington.
" 5	Frome & Oxford—Reconstruction of Bridges, 2 Contracts	Great Western Railway Co.	Engineer, Paddington Station, London.
" 5	Swansea—Foot-bridge	Great Western Railway Co.	Engineer, Paddington Station, London.
" 5	Brentford—Well, Engine House, &c.	Urban District Council	N. Parr, Clifden House, Boston-road, Brentford.
" 6	Hipperholme, near Halifax—Water-tower, Tanks, &c.	Hipperholme Mills	M. Hall, 29, Northgate, Halifax.
" 6	Mitcham, Surrey—Laundry Machinery	Holborn Union Guardians	H. O. Hill, Clerk, Clerkenwell-road, E.C.
" 7	Hull—Engines and Pumps	Corporation	F. J. Bancroft, Town Hall, Hull.
" 8	Stenford, Lincs.—Waterworks	Rural District Council	J. Clare, Surveyor, Stenford.
" 9	Ruthin, Denbigh—Steam Road-roller	County Council	R. B. Adams, District Surveyor, Denbigh.
" 11	Ramsgate—Gasholder	Gas and Water Committee	Chairman of Committee, Hardres-street, Ramsgate.
" 18	Nice—Steel Bridge over the Paillon	District Board	Commercial Department of the Foreign Office.
" 20	Belize, British Honduras—Electric Lighting	Corporation	A. Simkins, c/o F. Otto, Tower-chambers, Moorgate-st., E.C.
Nov. 5	Hull—Electrical Equipment of Tramways	Municipal Commissioners	A. E. White, City Engineer, Town Hall, Hull.
" 30	Singapore—Street Lighting		C. C. Lindsay, 167, St. Vincent-street, Glasgow.
IRON AND STEEL—			
Oct. 4	Llandudno—Cast-iron Pipes	Urban District Council	E. P. Stephenson, Council Office, Llandudno.
" 4	Axbridge—Cast-iron Pipes	Rural District Council	A. Powell, 3, Unity-street, Bristol.
" 5	London—Wrought-iron Hurdles	London County Council	Parks Department, Spring-gardens, S.W.
" 5	London—Girders, &c.	Great Western Railway Company	Engineer, Paddington Station, London.
" 6	Christiania—Fishplate Screws, &c.	Norwegian State Rly. Administration	Styrelsen Expeditjonskontor, Statsbanerne, Christiania.
" 11	Hemel Hempstead—Cast-iron Pipes	Rural District Council	W. H. Radford, Angel-row, Nottingham.
PAINTING AND PLUMBING—			
Oct. 4	Thornton Heath—Workhouse Infirmary	Guardians	H. List, Clerk, Mayday-road, Thornton Heath.
" 9	Cardiff—Painting and Papering	Guardians	A. J. Harris, Queen's-chambers, Cardiff.
No date	Derby—Painting Twenty-four Houses		101, Normanton-road, Derby.
ROADS—			
Oct. 1	Hull—Wood Paving Blocks	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 2	Middlesbrough—Paving (Six Contracts)	Streets Committee	F. Baker, Borough Engineer, Municipal Bldgs., Middlesbrough.
" 4	Croydon—Tar Paving	Guardians	F. West, 23, Coombe-road, Croydon.
" 4	Heckmondwike—Granite Paving	Urban District Council	J. Saville, Surveyor, Heckmondwike.
" 4	Kingstown, Ireland—Materials	Commissioners	J. Donally, Town Clerk, Town Hall, Kingstown.
" 4	Wealdstove—Materials	Urban District Council	B. Wyand, Surveyor, Wealdstove, Middlesex.
" 1	Wimbledon—Making-Up Roads (Three Contracts)	Urban District Council	Surveyor, The Broadway, Wimbledon.
" 4	Rawmarsh—Street Works	Urban District Council	J. W. Bellamy, Clerk, Council's Offices, Rawmarsh.
" 4	Romford—Norway Kerb, Stone, &c.	Urban District Council	Surveyor, Council Offices, Romford.
" 5	Aldershot—Granite	Urban District Council	Surveyor to the Council, Aldershot.
" 5	Whickham, Durham—Materials	Urban District Council	T. Lombert, Clerk, Town Hall, Gateshead.
" 5	Croydon—Road Repairs	County Borough	Borough Road Surveyor, Town Hall, Croydon.
" 5	Coventry—Materials	Corporation	J. E. Swindlehurst, Town Hall, Coventry.
" 6	Herne Bay, Kent—Norway Granite Channelling	Urban District Council	Surveyor, High-street, Herne Bay.
" 6	Weybridge—Materials	Urban District Council	J. S. Crawshaw, Council Offices, Weybridge.
" 6	Southend-on-Sea—Making-up Streets	Corporation	A. Fidler, Clarence-road, Southend.
" 6	Gravesend—Granite	Town Council	Borough Surveyor, Gravesend.
" 7	Jarrow—Road Works	Sanitary Authority	Petree, Borough Surveyor, Jarrow.
No date.	London, S.E.—Screening and Breaking Flints		43, Silverdale, Sydenham, S.E.
"	Manchester—Flags	Corporation	Chief Clerk, Highways Office, Town Hall, Manchester.
"	Bradford—Two Streets		J. Hindle, 24, Bank-street, Bradford.
"	Castle Donington—Road, &c.	New Industries Company	H. German, Ashby-de-la-Zouch.
"	Norwich—Street Works		D. Hall, Swardston.
SANITARY—			
Oct. 2	Douglas, Isle of Man—Sewers	Corporation	Stevenson and Burstall, 38, Parliament-street, Westminster.
" 2	Dartmouth—Laying Sewers	Corporation	T. O. Veale, Borough Surveyor, Dartmouth.
" 4	Clandeboyne, Ireland—Sewerage Works & Water Supply		J. Lanyon, Northern Bank-chambers, Royal-avenue, Belfast.
" 4	Southend-on-Sea—Sewers, and Pumping Station	Corporation	J. Mansergh, 5, Victoria-street, S.W.
" 4	Consett, Durham—Removal of Refuse	Urban District Council	T. W. Welford, Clerk, Parliament-street, Consett.
" 5	Chalfey, Sussex—Sewerage and Sewage Disposal	Rural District Council	Powell and Co., Lewes.
" 5	London—Lime for Outfall Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 5	Wallingford—Sewerage, &c., Works	Rural District Council	B. Latham, 13, Victoria-street, Westminster.
" 5	London—Proto-Sulphate of Iron	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 5	Chalfey, Sussex—Sewage Pipes	Rural District Council	Powell and Co., Lewes.
" 5	Westminster—Sewerage Works	Vestry	G. R. W. Wheeler, Town Hall, Caxton-street, S.W.
" 5	Bridgewater—Drain and Manholes	Rural District Council	W. Coles, 1, Thornbury Villa, Wembdon.
" 5	Leyton—Sewers, &c.	Urban District Council	W. Dawson, Town Hall, Leyton.
" 6	Wrexham—Sewerage Works	Rural District Council	J. O. Bury, Clerk, 9, Temple-row, Wrexham.
" 6	London, S.W.—Sewers, &c.	Westminster Vestry	G. R. W. Wheeler, Town Hall, Caxton-street, S.W.
" 9	Berwick-on-Tweed—Sewerage Works	Sanitary Authority	E. Dickinson, Borough Surveyor, Berwick-on-Tweed.
" 11	Glossop—Concentrating Sewers, &c.	Corporation	Lomax and Lomax, Grosvenor-chambers, Manchester.
" 11	Hemel Hempstead—Sewerage Works	Rural District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
" 11	Beckenham—Sewers, &c.	Urban District Council	J. A. Angell, Council Offices, Beckenham.
" 13	Billerica—Sewers, &c.	Rural District Council	Messrs. Jones, 25, Parliament-street, S.W.
No date.	Liverpool—Removal of Refuse		Chief Officer, Fire Salvage Association of Liverpool Ltd.
"	Woolston, Southampton—Scavenging	St. Mary Extra Parish Council	W. Fowler, Clerk, Madeira, Woolston.
TIMBER—			
Oct. 9	Cardiff—Timber for Showyard Buildings	Bath & West & Southern Counties Soc.	T. F. Plowman, 4, Terrace-walk, Bath.
No date.	Wakefield—Pitch Pine Head Gear		Hemsworth Colliery, near Wakefield.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 8	Leeds—Designs for Meat Market and Abattoir	£100, £50, £25	Corporation.
" 13	Dorking—Plans for Infirmary	£15, £5	Guardians of Dorking Union.
" 20	Colne—Technical School, Free Library, and Public Hall	£50, £35	Corporation.
" 23	Wolverhampton—Free Library (selected architects)		Town Clerk, Wolverhampton.
" 30	Uxbridge—Schemes for Sewerage and Sewage Disposal	{ £45 (if combined) £15 for Eastcote and £25 for Northwood (if separate schemes)	Rural District Council.
Nov. 20	Southend-on-Sea—Plans for Church	Not stated	St. Alban's Church Committee.
" 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200.	Corporation.
1898.			
Jan. 1	Newcastle-on-Tyne—Infirmary (Local)	(No First.) £150, £100, £50	Secretary, Building Committee, Newcastle.
Feb. 28	New York—Model Sun Dia in Plaster	500 dol., 250 dol.	Sec. National Sculp. Soc., 215, West 17th-street, New York.
No date.	Bexhill-on-Sea—Designs for Promenade Pier & Pavilion	Not stated	Bexhill Pier, Park, and Land Company, Limited.
"	Lichfield—Plans, &c., for Nursing Home and Invalids' Kitchen	£10, £5	Lichfield Nursing Home Building Committee.
"	Blackburn—Plans for School	2nd Prize, £5	St. Mary's Catholic New Infant School Committee.

Practical Carpentry and Joinery.

(Continued from page 124.)

By GEO. ELLIS.

EXCAVATIONS for drains, foundations, &c., require strutting to prevent the sides falling in upon the workmen. The arrangement of struts, &c., used for this purpose is called the "timbering." The form of this timbering varies according to the nature of the soil and the size of the cutting. For a good firm soil, the arrange-

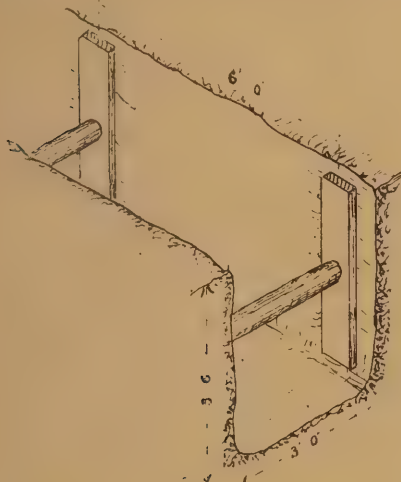


FIG. 15. TRENCH IN GOOD GROUND.

ment shown in Fig. 15 is adopted. When the ground has been taken out to a depth of 4ft., pairs of poling boards, 2in. by 7in., and of suitable length, are placed at the sides at intervals of 6ft. or 8ft., and strutted apart with short fir poles driven tightly between them. This process is repeated until the trench is opened to the required depth, when longer poling boards are substituted for those first used. At every 5ft. or so in depth, a stage of scaffold boards is laid on the struts, upon which the earth is thrown by successive gangs of men till it reaches the top, where it is banked on either side till required for refilling the trench.

In looser soils, thinner poling boards are placed side by side, and crossed at their centres by horizontal timbers, called "walings," which are strutted as shown in Fig. 16. In bad ground, where the sides will not stand long enough to allow of a depth sufficient for the use of poling boards, to be excavated, the ground is taken out to a depth of 9in. or 1ft.,

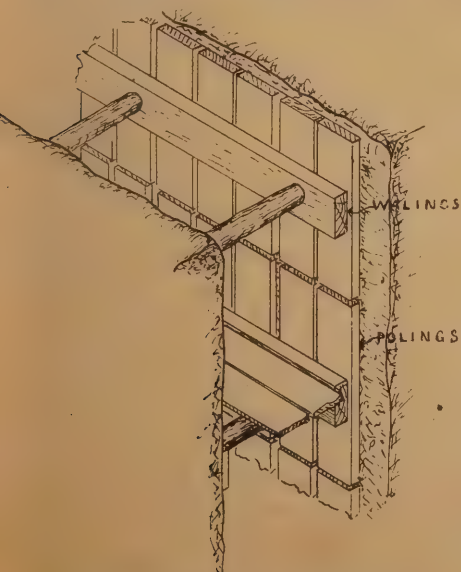


FIG. 16. TRENCH IN LOOSE GROUND.

and 1 $\frac{1}{2}$ in. by 9in. boards, called sheeting, are laid longitudinally at each side of the trench and strutted, then a similar depth is taken out and another pair of boards inserted and fixed. When these reach a depth of 3ft., vertical waling pieces are laid against them and strutted in their turn, the other struts being then knocked away (see Fig. 17). It is also advisable to make the sides of the trench taper slightly towards the bottom in case of any shrinkage of the soil and subsidence of the timber; the struts will have a tendency to tighten up. Where deep excavations have to be made in water-logged ground, or where the strata is inclined, i.e., not at right angles to the weight it has to carry, a heavier form of timbering is used (see Fig. 18). The trench is lined closely with 3in. by 11in. deals, about 8ft. long, called runners, kept in position by stout walings and die square struts. The ground is opened as deep as consistent with safety, the walings inserted and fixed against guide pieces, the runners with their ends sharpened, so as to drive away from the trench, are then entered behind them, and driven in as far as possible. The earth between them is then removed and the runners again driven down, the process being repeated till the ends of the runners are flush with the top of cutting, when another tier is commenced, just within the first. As this continuously reduces the size of the trench, due allowance must be made for it at commencement.

It should be observed in timbering trenches that the timber must be driven tightly against the sides, to prevent any movement of the soil, but not with sufficient force to disturb it. The

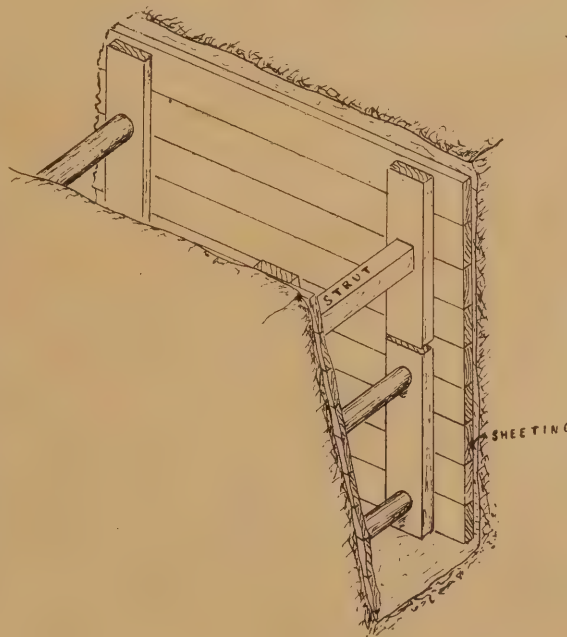


FIG. 17. INCLINED TRENCH IN BAD GROUND.

struts should be of not less than 4in. diameter, increasing in size with the depth of the excavation. Immense and unexpected strains are sometimes thrown on the timbers in deep cuttings, and it is very dangerous to use small timbers. Struts small in diameter, in proportion to the width of the walings, will often cause the latter to split.

TUNNELLING.—The method of timbering a tunnel in good ground is shown in Fig. 19. The process is usually carried out as follows: The excavator removes about 3ft. of earth, making the hole about 6ft. high and 4ft. wide at the bottom, and 3ft. at top. Poling boards are then driven in at the top and held up by a head-piece and two side posts, the lower end of these posts being sunk in the ground a few inches to prevent them slipping. When two of these frames have been erected poling boards are driven behind them to line the sides, and a further portion of earth is taken out from the top. Another row of poling boards is driven in, overlapping the first driven, and the next

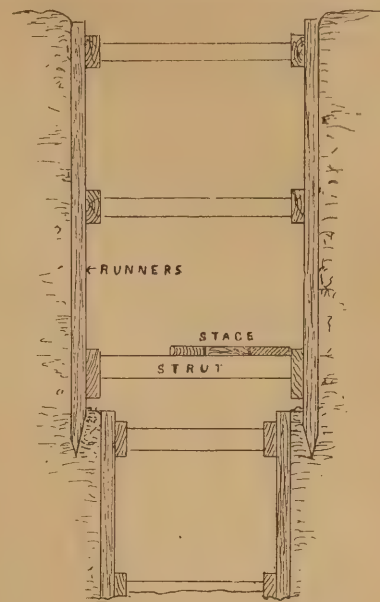


FIG. 18. TIMBERING FOR DEEP CUTTING IN BAD GROUND.

frame erected secures both sets. This process is repeated throughout the tunnel. Fig. 20 shows the method adopted in bad ground. The sides and top of the tunnel are close-lined with poling boards, kept in position by the frame of square timber; inside this is constructed a frame of stout round timber, the sides being notched into the head and sill. Blocks or folding wedges are then driven between the frames to set the work up securely.

(To be continued.)

LONDON'S REFUSE.

HOW IT IS DISPOSED OF.

COMPARATIVELY few who cross Waterloo Bridge are aware that within a stone's throw to the east, on the Surrey side, lies the splendidly-organized and fully-equipped Dust Yard of the City Commissioners of Sewers. In its way it may fairly claim to rank among the most interesting of the unfamiliar sights of the metropolis. Since 1877 the yard has been an existent fact, and though occasional novelties in combustion systems or smoke consumption may be tried, it has succeeded in developing to keep pace with the growth of London without much alteration or enlargement. In extent it covers about five acres, and with its frontage to the river and free currents of air, there is neither smell nor unpleasant "fluff" about the place, even upon a close and stuffy September afternoon. Some general figures. As to the

MAGNITUDE OF THE OPERATIONS

undertaken by the yard, it should be explained at the outset (says the Daily Graphic) that it deals with something like 200 tons of refuse daily, or 238,000 van loads in the course of the year. In summer time the work is far lighter than in winter, when fires are general and rain is continually adding to the mud of the streets. The scavengings of these latter are kept totally distinct from those of dwelling houses and shops, and each is dealt with upon a fixed system. The wage list includes about 700 men, women, and boys, and sub-contracting of any sort was abolished by the Corporation a few years ago. The result is that in wages and hours the workers are far better off than they are in the yards of private contractors. About ninety-five horses are required for the work, which may be said to be unending. For,

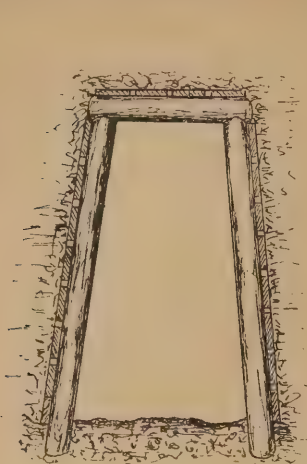


FIG. 19. TUNNELLING IN GOOD GROUND.

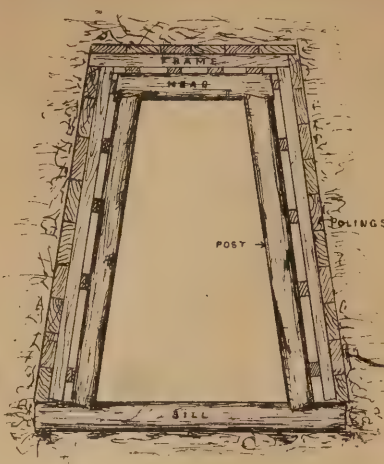


FIG. 20. TUNNELLING IN BAD GROUND.

with the exception of a few hours on Sunday, the heavy carts with their gilt lettering of "City Sewers" are continually passing day and night from the civic area to Lambeth. As soon as a van-load arrives its contents are shot on to an already huge heap, which it would seem could never be cleared up into anything that could be classified. The scene is a curiously picturesque one, and it is strange that with its bustling movement and bizarre colouring it has not received more artistic notice. Across the river stands Somerset House, always stately in its grey length and height, and across Waterloo Bridge an unending procession of the tops of vehicles and tall hats are to be seen. On the Surrey shore lie some heavy low-built Thames barges, with a glimpse of their rigging and furled orange sails to fill in a background for the picture, while the vast pile itself is an

ODD MOSAIC OF BLACK AND WHITE,

with sharper notes of green and yellow, blue and violet thrown in; for an enormous proportion of the rubbish brought in consists of paper—letters scarcely torn across, newspapers, whole or in fragments, brown paper wrappings, tissue paper packing, and now and again the cover of a cardboard box or some piece of gay wall-paper appears in the mass. The paper that is clean enough to be saleable alone amounts to a hundred tons a month, or twelve hundred tons a year, while quantities are too dirty or in too small fragments to be worth saving. The work of sorting is done by the men and women together, the former doing the heavier work of loosening the heap with their forks and carrying away the baskets as they fill up with one or other form of apparently worthless stuff, the latter throwing tins or string, rags, corks, bottles, or anything of even the most infinitesimal commercial value into separate receptacles. But this does not represent the ultimate possibilities of searching out, for a great proportion of the rubbish is sifted through fine sieves, and any small properties of the slightest use are at once detected. This part of the work is also done by men and women together, the women standing behind large heaps of the dust and shaking the material through as it is pitched to them in shovels by the men. Some five or six were employed in this department on the day that I visited it, and among them were one or two girls of the true South London factory type with heavy fringes and large gilt earrings. But the feather hats were spared the destructive influences of the work, and each wore swathed round her head in turban fashion the more becoming headdress of a gaily coloured pocket handkerchief.

THE FURNACES.

But, after careful separation, there exists a huge proportion of material that has neither direct use nor saleable worth. Of this a quantity, averaging ninety van-loads a day, or a little more than a load per quarter hour, is destroyed in the vast series of furnaces which occupy one great shed. The *débris* is

conveyed to the upper floor, where it lies in stacks, and is passed down to the blazing chambers below, where the heat is intense enough to fuse stoneware bottles, scraps of paper, bits of metal, and a thousand and one miscellaneous substances into a coke-like looking production technically known as "hard core," and much used for the foundation of roads or asphalted tracks. Our guides had one of these furnaces opened for us, and the heat of the glowing contents caused us to move some paces back, while from a fragment of glass near the grating beneath were falling through molten drops, which cooled into threads of silk-like fineness. Compared with the wages paid for other forms of unskilled labour, and with those offered either by

PRIVATE OR SUB-CONTRACTING FIRMS,

the Corporation deals generously with its hands. The women especially are well treated, for their wages run from 12s. to 14s. a week, the higher figure being paid to the majority of the eighty to ninety employed. For both men and women are large and comfortable separate rooms for meals, and each is provided with a big fireplace for the warming of food, or the making of tea; while in the winter, when the dustmen must go their rounds alike in rain or shine, a drying room heated by hot-air pipes is an immense boon for them to dry their wet coats. "Finds," of course, are numerous upon the heaps, and many articles of great value have been restored to their owners from the yard. On one occasion some bonds, representing many thousands of pounds, were discovered, and cheques frequently turn up—very often, too, merely payable "to bearer." On the whole the workpeople are exceedingly honest, though the work develops their acuteness of sight for a coin or stamps to an almost incredible degree. The superintendent of the yard assured me he had frequently been watching as he thought most keenly for something of value to appear, and saw nothing, while a practised eye would detect and bring out apparently from under a heap a threepenny piece, or an even less visible halfpenny. A reward is, of course, given for anything found of worth, but only a short time since an extremely good pair of opera glasses were discovered by a man, who secreted them and took them to a pawnbroker's near by. The pawnbroker suspected that something was not quite right about them, and detained the man, who was convicted and lost his situation, as a kind of object-lesson to others to abide by the rules of the yard. The corpses of babies have on two occasions been found in the yard, among the more gruesome items of its rarer finds. A walk through the City dustyard is a most instructive lesson in the economy of production, for absolutely nothing is wasted. Even what is so worthless that it is only burnt, comes out in the form of "hardcore," a cheap road metal, and the fine dust that passes through the sieves contributes a useful item to brickmaking. Rags, of course, find their way to the paper makers, as

do the 1200 tons of waste paper which are at the disposal of the Commissioners during the year. This, as a rule, is re-made into cardboard or the thicker kinds of brown paper used in packing, and is sent out from the yard in neatly-shaped and wrapped-up bales of about two hundredweight each. Corks are among the most attentively sought-for treasures, and are carefully sorted out according to size, as the larger ones from wine bottles can generally be cleaned and cut down so as to serve for smaller bottles, while the tiny ones or those too much damaged for any use as stoppers are much in demand by the makers of inexpensive lifebelts, for which there is a good market. Another commodity of which the authorities never have more than they can dispose of is string, which contributes the basis of the best and toughest of foreign notepaper. Enormous quantities of this, both in long and short lengths, are found, but no scrap of it in any quality or thickness is passed over. Old iron, scraps of indiarubber, fragments of braid, broken furniture, and quantities of empty reels, are all saleable again, and there were several baskets filled with old brushes—from carpet sweepers to bonnet whisks—which had not ended their work yet in the world.

THE STABLES.

The Corporation is proud of its horses, and the stables of the yard is one of its best sights. They average £80 a piece in value, and represent the best type of the English Shire horse. Most of them stand over seventeen hands in height, and are capable of doing three or four journeys a day. The inspector of the yard was careful to point out that no bearing reins are allowed, and experience had shown the wisdom of abolishing this unnecessary and cruel addition to the gear of a draught horse by the comfort and sureness of foot that the animals evince under the most trying conditions of slippery wood and asphalt upon the ups and downs of the City streets. Another stringent rule upon the drivers is that they shall not trot their horses. The stables are high, light, and airy, and the stalls roomy and comfortable, with abundant supplies of peat moss for litter. The yard has its own farriers' shed, and the greater part of the substantial-looking harness, with its repeated "C.C.S." in brightly-burnished brass, is also made upon the premises. Our tour of inspection was not complete until we had been to the wharf side to see the barges in which

THE STREET SWEEPINGS

were conveyed away. These sweepings possess a market value for manure, and large farmers and wholesale vegetable growers are the customers. The sweepings are mixed with a certain proportion of other refuse, and the whole is disposed of at a low price. Some nine barge loads of about seventy tons apiece represent the average output of the week. As we saw one of these barges lying alongside it was an idyllic little scene of river life. There was the husband, a strong, muscular fellow, perhaps six feet tall, putting the last shovelful of his not too savoury cargo on board. At the stern sat his wife, with the tea things comfortably set out, and filling her interval of waiting by knitting as patiently and quietly as any German *Hausfrau*; while their little girl, a delightful, golden-haired mite of about three years old, in a vivid scarlet pinafore, was giving a lesson in manners to an obstreperous dolly. Near by lay another barge loaded high with straw for delivery at the wharf, it being usual to take the opportunity when sending a barge to bring back manure, of forwarding up by it a load of straw or hay. Even at this point, where less than in any other part of the yard can precautions be taken to mitigate mal-odourousness, was there the slightest smell, and the gentle breeze across the river dispersed every element of offence. But it would not be fair to put into comparison all dust-yards with that of the City. At Letts's Wharf, however, where the rule obtains of fifty-three hours work a week, the conditions are made as tolerable and even pleasant as it is possible that the humble vocation of the *chiffonnier* can ever hope to become.

Professional Items.

ABERDEEN.—For some weeks past Ferryhill Free Church has been undergoing alterations. Additional sitting accommodation has been becoming needful, and this has now been provided in an extension of the gallery. Roomy side galleries have now been inserted, running from the end gallery along each wall and into the transepts on each side of the pulpit. The woodwork is of the rich pine of which the other furnishings were constructed, and is specially beautiful in the gallery front, which is of a decorative character, prominent quatrefoil panels being the central design, round which the rest of the moulding and panelling is worked. Then the internal walls, including the walls of the vestibules and staircases, have undergone treatment at the hands of the decorator. A Gothic style of treatment has been adopted. Upon a faint blue ground decorative "curtains" are depicted, and in the surmounting frieze a strong blue quatrefoil appears in a rich brown foliage setting. Around the base of the ceiling the quatrefoil is again effectively brought out in strong red in the sunk panels of the woodwork. The ventilation arrangements have been overhauled and improved. The improvements have been carried out by Messrs. D. and J. E. McMillan, architects; the contractors being:—For the joiner work, Messrs. Garvie and Sons; painter and glazier work, John Whyte; ventilating arrangements, J. F. Anderson, Bath Street.

The Plans Committee of the Town Council has approved the plans of the following: Two dwelling-houses and business premises on the north side of John Street, for Messrs. Scott and Sellar, plasterers, per Messrs. W. and J. Smith and Kelly, architects; two dwelling-houses on the east side of Great Northern Road, for Messrs. Pringle and Slessor, builders, per Mr. Peter Slessor, architect; dwelling-house on the north-west side of Walker Road, Torry; two dwelling-houses on the north-east side of Duthie Terrace, for Mr. John Murray, builder, Glasgow, per Messrs. J. and W. F. McRobb, builders; four dwelling-houses on the north side of Gladstone Place, per Messrs. Harper and Sutherland, architects. The Committee had also before it the plan of four dwelling-houses on the south side of Merkland Road East, for Mr. James Cooper, builder. The Committee approved of the plan, but as there is no sewer at present in Merkland Road East, the Committee resolved to require Mr. Cooper to drain the buildings into covered cesspools, to be constructed to the satisfaction of the Burgh Surveyor.

BELFAST.—The Crescent Church, Belfast, after having undergone a complete renovation, has just been re-opened. The interior decorations have been carried out by Mr. Alexander Thompson, Dublin Road, under the supervision of Mr. J. B. Wilson, of Glasgow, the architect for the buildings. The work has cost some £500.

BRADFORD.—The Presbyterian Church of England has been re-opened after recent alterations. The organ has been reconstructed and fitted with pneumatic action, a hydraulic engine has been fixed, and the console has been placed in front of the pulpit. The school-room has been made more comfortable, and various other improvements effected, at a total cost of £550.

BRIGHTON.—A technical school, provided at a cost of about £24,000, was started by the Brighton Corporation a few days ago. The building stands on a site facing the public recreation ground, and within easy distance of the railway. It is expected that the school will be largely used by students in other parts of Sussex. It will be the aim of the Town Council to make it a most substantial addition to Brighton's importance as an educational centre. The cost of the building and its equipment, as well as the expense of maintenance, will, it is anticipated, be covered by the Government grants under the local taxation account. The building has a frontage of

red brick and terra-cotta, with a marble staircase. The walls of the staircase and vestibule are filled with panels of marble brought from all parts of the world, inscribed with their names and their uses or defects for building purposes.

BRONDESBURY.—A new building is about to be erected in Calcott Court, Brondesbury, parallel with High Road, Kilburn, to be called Calcott Court, with frontage of 140ft. The block will consist of residential flats, with extended right and left wings designed in the Georgian style. It is intended to arrange a front lawn or court, with a gravel sweep, garden seats; and a sundial in centre of lawn. This, with a front of plain red brick, with gauged arches and aprons and green Venetian shutters, will have a quiet and retiring effect; while each flat will have the accommodation and modern improvements of a self-contained residence. Messrs. P. Palgrave and Co., Westminster, are the architects for the work.

CARDIFF.—The laying of foundation stones of a new chapel in Machen Place took place the other day. The accommodation of the old school chapel having proved insufficient, the trustees decided to build a more commodious edifice immediately adjoining the old structure. The new church is in the course of erection, and is being built on land belonging to the Right Hon. Lord Tredegar. The style of the architecture is Gothic, one of the principal features being a tower and turret at the north-west angle of the building. The materials used are New-bridge stone with Bath stone dressings, and the internal woodwork is of pitch-pine. The edifice, which will accommodate 650 people, will cost about £2360, and the work is in the hands of Messrs. Cox and Bardo, contractors, Elm Street, Cardiff. The architects are Messrs. Habershon and Fawcner, of Cardiff and Newport.

CHISWICK.—The property recently known as Grove End House Estate, including a somewhat modern Elizabethan mansion fronting the river, has now been disposed of, and is to be laid out as a building estate, involving the demolition of the house. Messrs. Palgrave and Co., Victoria Street, S.W., are retained as the architects and surveyors for the work, the plans for which are now being prepared.

GLASGOW.—Traffic on Buchanan Street, Glasgow, between St. Vincent Street and West George Street was suspended on Monday week to allow of the laying down of a new sort of paving by way of experiment. The material is a kind of asphalt, is the patent of an American Company, and is named alcatraz. Its chief constituents are a quartz sand found on the coast of California, fibre, and bitumen. Although new in this country, the alcatraz paving has been in use in America for a considerable number of years, and it is said to stand wear admirably and also extremes of heat and cold. The workmen engaged in laying the pavement have been brought from America, and are mostly men of colour. In putting it down they are assisted by a small and very rapid steam road-roller. The asphalt is laid on the top of concrete to a depth of 3in. The pavement is to be upheld by the Company for five years, free of cost to the Corporation.

At a special meeting of the Dean of Guild Court on September 22nd, Mr. Daniel Gold, builder, was charged with a series of deviations from linings granted by the Court in respect to tenements in New Street and Shuttle Street. He was charged with failing to pave the back courts behind these tenements; with not making the proper connections in the soil and drain pipes; with not putting locks on the doors and seats in the water-closets at 27 and 29, New Street; with failing to strap an outside gable at 27, New Street, or otherwise prevent damp from entering the wall; with making the windows of a water-closet at 29, New Street 2ft. 2in. in place of 3ft. 2in.; with making the height of the ceiling of a bedroom at 29, New Street 9ft. 4in. in place of

9ft. 6in.; with making the partitions between the presses at 27 and 28, New Street of wood instead of brick; and with allowing tenancy without first obtaining a certificate from the Master of Works. The Provost said the Court would like it to be clearly understood that the Dean of Guild Court had been instituted primarily for the protection of the public and the promotion of public health. In respect to the present case they fined Mr. Gold £5 in each of the three cases of deviation from plan, and ordained him to lift the back courts and pave them with granolithic, to put the soil and water pipes in proper order, to enlarge the water-closet window, and at 27 and 28, New Street make brick partitions between the presses—all to the satisfaction of the Master of Works; for allowing occupancy without certificate, £5 for each of the three tenements—total, £30. An appeal was intimated.

HAMPSTEAD.—A block of residential mansions are now in course of erection on the site of "The Forge," West End Lane, N.W. There are to be three self-contained flats on each floor, with separate main entrances, and containing dining and drawing-rooms, kitchen, scullery, larder pantries, &c.; w.c.'s, bath, and lavatory, with service lifts, four bedrooms. The building will be fitted with all modern improvements, including electric light. Messrs. P. Palgrave and Co., 28, Victoria Street, S.W., are the architects.

HUDDERSFIELD.—A large meeting of the General Purposes Committee of the Huddersfield Corporation last week had under consideration the status of Mr. R. S. Dugdale, the Borough Surveyor, whose affairs are now in bankruptcy. The meeting lasted an hour and three-quarters, and came to the consideration of the matter after it had been dealt with at a protracted sitting of the Finance Committee. The result of the proceedings was that, by an almost unanimous vote, the General Purposes Committee came to the conclusion that opportunity should be given to Mr. Dugdale to send in his resignation. Whilst not a few members of the Committee gave expression to a feeling of sympathy with Mr. Dugdale in his difficulties, it was evident, on the other hand, that a pretty general opinion prevailed that the proper conduct of corporate affairs and the discipline of the department more intimately concerned required that such a decision should be arrived at.

HULL.—The new cricket ground of the Hull Cricket Club Limited, is rapidly progressing towards completion. The ground comprises an area of over sixteen acres, leased from the North Eastern Railway Co. Ltd., and will be enclosed by a light fence. In the centre and on the west side will be situated the Members' Pavilion, which will be formed upon the top of seven or eight terraces used for seats, and will accommodate over 1500 members. On the right of the pavilion is the Grand Stand, and upon the left the Bowling Green of the Hull Bowling Club. The whole of the land is to be thoroughly drained. The Public Park adjoins the site, and is situated at the back of the Pavilion. The whole of the work, including draining and laying of wickets is under the supervision of Mr. Percy T. Runton, architect, Hull.

KILBURN.—The familiar but by no means picturesque landmark at the top of Shoot Up Hill, Edgware Road, and known as the "Old Mill," Kilburn, is to be demolished, and an imposing block of residential flats are to be erected on the site with a return frontage to Mapesbury Road. There have been considerable building operations in the surrounding localities for some time past of good-class property, and the removal of this unsightly structure referred to will certainly assist to improve that part of Kilburn—on the main road to Hendon—now so popular with Sunday travellers. The new building is to be faced with red brick and stone, and contain in all sixteen complete sets of residential flats. Tennis lawns will be arranged in front with balconies overlooking the same. Each flat will be self-contained, with dining and draw-

ing-rooms, kitchen, scullery, larders, &c., service or tradesmen's lifts, two w.c.'s, bath and lavatory, four bedrooms, electric light, and speaking tubes from entrance hall to each flat. Messrs. P. Palgrave and Co., Westminster, are the architects; and the building is estimated to cost £12,000.

LEEDS.—The following are the principal results obtained in connection with the work done during the past year under the Science and Art Department, South Kensington:—Studentship in training, tenable at South Kensington, minimum value £220—F. Paul. Royal exhibition, tenable at South Kensington, value £160—J. F. Friedenson. Local scholarships, value £60 each, tenable at the Leeds School of Art—R. H. Smith and J. A. Hancox. The total value of scholarships won by this school is over £500, and is one-tenth of the scholarships offered by the Department for competition among all Schools of Art in the United Kingdom, the only school to obtain more awards being the Royal College of Art, South Kensington. The results of the National Competition were:—Silver medals—A. J. Rushton, drawing from life; and A. J. Rushton, for drapery arranged on the model. Bronze medals—Annie Cartlidge, painting still life; Fanny L. Cowell, painting in monochrome; F. C. Drake, modelling ornament; J. T. Friedenson, drawing from life; Inez Laws, modelling from life; E. S. Ounsworth, decorative design; F. Paul, architecture from measurement; A. J. Rushton, painting nude figure from life; A. Schofield, drapery on antique figure. National Competition Queen's Prizes—Lavinia Brogden, for design; Frances E. Callum, painting in monochrome; G. C. Duxbury, drapery on antique figure; G. C. Duxbury, for painting still life; Ethel Mary Denison, modelling from life; J. T. Friedenson, figure design; R. Goldstone, decorative design; H. E. Henderson, architectural design; Inez Laws, modelling from life; Julia Lee, modelling anatomical figure; E. S. Ounsworth, decorative design; F. Paul, drapery studies; F. Paul, design in monochrome; E. F. Reynolds, modelling ornament; H. Swanwick, architectural design; A. Schofield, head from antique; A. Schofield, architecture from measurement; Tamar B. Wick, painting figure in monochrome; H. Walker, design in relief. The results in the National Competition are the highest ever obtained by the school.

NEWCASTLE.—At the Trinity Presbyterian Church, Northumberland Road, Newcastle, the Sanderson Memorial Window was unveiled on the 23rd inst. Stained glass windows are somewhat rare in Presbyterian churches, and, if we are not mistaken, the Sanderson Memorial is the first window of the kind placed in a Presbyterian place of worship in this district. Old prejudices having given way to the introduction of church organs, it is hardly likely that they will continue to prevail against the painted window. The window occupies the entire north gable of Trinity Presbyterian Church. It has been admirably grouped, and brings out in an imposing manner the three following subjects:—"Christ Comforting the Afflicted," "Blessing Little Children," and "Feeding the Multitude." Each group occupies two openings. In the lower divisions of the window are six angels, bearing scrolls, on which are written the memorial inscription. The tracery above is filled with the representation of an angelic host. The general scheme of colouring is rich and warm in tone, the draperies being enriched with delicate diapers, giving to the whole a chaste effect. The canopies, which are architectural in character, are of a soft, greenish white, relieved with gold. The draughtsmanship has been most skilfully handled, the expressions of the faces being particularly fine. The artists are Messrs. Atkinson Brothers, of Newcastle.

OSWESTRY.—At the Greyhound Inn, Willow Street, a large part of the roof from wall to wall collapsed a few days ago, the oak beams and rafters, with heaps of slates, being precipi-

tated into the rooms below. Later there was another serious collapse, whereby the Inn, the cottages, and the old malt-kiln were unroofed from end to end. The block is, perhaps, two hundred years old, the malt-kiln was for forty years used by the late Mr. Thomas, of Ardmilan, and the Inn is one of the oldest licensed premises in the town. The beams and rafters are very old, and it was thought the fall was precipitated by the heavy weight of the old slates having become sodden with the recent rains.

OTLEY.—The foundation-stone of a new Congregational church, which it has been decided to erect at Otley, in place of the one which has been in existence for upwards of sixty years, was laid within the past few days. The new building is to be in the Decorated Gothic style, and will have a spire, the apex of which will be 94ft. above the ground. The church will contain sitting accommodation for 542 worshippers, but 700 persons may be comfortably accommodated within the walls when necessary. Contracts already accepted in connection with the building amount to £6000, but the cost of the church when completed will probably be not far short of £6500, exclusive of boundary walls. The architects are Messrs. T. H. and F. Healey, of Bradford.

PETERBOROUGH.—A remarkable discovery has just been made at the village of Orton Longueville, near Peterborough. Several workmen were engaged in excavatory work under some old and dilapidated outbuildings on a farm, when they came across a well-made floor, about 6ft. below the level. On a minute examination being made, they found that the floor was entirely constructed of knuckle-bones, supposed to be those of sheep and cattle. It is estimated that the singular work is at least 150 years old.

SCARBOROUGH.—The Scarborough bricklayers, who are on strike for an increase in their wages from 8d. to 9d. per hour, have again refused the offer of the masters to advance ½d. per hour. Some of the Scarborough employers have conceded the penny, and a large number of the men have left the town, and obtained work elsewhere at the fully enhanced rate.

WIGAN.—The re-opening of St. Patrick's Church, after extensive alterations and improvements, took place within the past few days. The following is a short description of the improvements: On the wall, immediately behind and above the High Altar, are some cleverly executed monograms in coloured oils and gold leaf, alternately of the crown and cross and "I.H.S." Directly in the centre and high above the altar is a gilded circle, in which is hung a large and handsome crucifix, brilliantly ornamented in red oils and gilt work. Below the monogram work on each side of the altar, and forming lower borders, are two paintings of the style of a conventional treatment of curtains with monograms in medallions, in the centre of which are the characters, "I.H.C." "X.P.C." and "I.C.G.," alternately with a large gilded cross. The groundwork of the whole will be covered in green oils. The roofing of the sanctuary is prettily ornamented with stars in oils and gold leaf, and this is, indeed, the case of the whole church. The body of the church is in the usual plain, but neat border work of decoration. The church, especially the sanctuary, now presents a picture of beauty, and forms an excellent specimen of the decorator's Art. The whole of the work has been carried out by Messrs. R. Park and Sons, of Preston.

A SWANSEA correspondent reports that the tinplate trade in South Wales still continues in an unsettled condition. A deputation of the steel department at Cwmburla Works has waited upon Mr. Coulson Bond, one of the directors, and was informed that the steel department would be permanently closed. The men were advised to seek employment elsewhere.

Enquiry Department.

SLATES.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you favour me with the address of the Dublin Slating Co., to which your journal of even date refers? and oblige

J. H. H. P.

Cairo Street, Warrington, Sept. 15th.

The address of the Dublin Slating Co. is 1 to 4, Lower Erne Street, Dublin.—Ed.

LEVELLING GRADIENTS FOR ROADS AND SEWERS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—As a student I shall be obliged if some practical reader will show the method (by calculations) of taking levels and fixing of sights to different gradients for the laying of sewers, drains, and making of roads on any assumed plan.

J. R. F., JUN.

We presume you require information upon the practice adopted in England, as it differs from that practised abroad from the fact that England has been accurately surveyed throughout, and you can get your datum by obtaining an ordnance map, which in many other countries you would not be able to avail yourself of.

In the case of levelling for roads and sewers it usually happens that the surveyor is supplied with a plan of the estate or a portion of the parish map, upon which the line of route for road or sewer is marked and laid down by the engineer in charge of the work. He is generally supplied also with a section showing the heights of the various parts of the road or the surface of the ground beneath which the sewer will pass, and this sectional plan will also give the shape of the sewer, with the gradient or fall which it is intended to have, or in the case of roads, where the level is to be raised or a steep gradient reduced by cutting, &c., is shown. The length of the sewer from end to end is usually also given, or it can be scaled from the datum line shown upon the drawings.

You cannot do better than familiarise yourself with the ordnance map, from which you will be able to obtain any of these points which may have been missed from the plans provided for you.

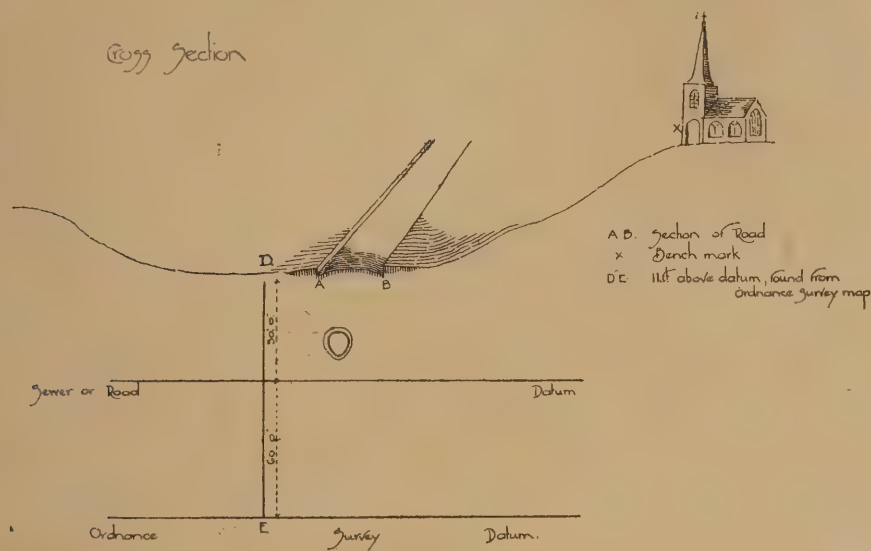
One great advantage of the Ordnance Survey is that every little farm or cluster of buildings has been given a name, and although people living in the locality are often ignorant of them, you will soon be able to pick out any particular landmark, and be able to say "My roadway or sewer passes within a few chains of that"; and having when the time arrives once obtained your bearings or starting-point, you will find it very easy to connect other buildings along the line with those shown upon the map.

The levelling surveyor has generally nothing to do beyond attending to his levels and staves. The line of the road or sewer has usually been already marked out, and you have only to look in the right spot, easily found by practice, for the bench marks. These marks are to be found in all parts of the country. Wherever a prominent object can be utilised for the purpose, the Government surveyors will be found to have availed themselves of it. It may be a particular post or a coping, or a mark upon a wall. These bench marks are generally in the form of a triangle, a broad arrow, or a crow's foot. In the first and third, the exact station mark is considered to be in the centre, whilst for the broad arrow it is considered to be at the junction of the three lines.

Having found the nearest bench mark to the line of sewers or roads, the next thing is to send a man with the figure-staff, who must carefully hold the latter upright upon the bench mark. Next plant the theodolite, or dumpy level, firmly in the ground at a convenient distance between that and the line of route of road or sewer, and adjust the level very carefully, and note down upon the plan the height shown by the cross hairs of the telescope upon the figure

staff. Then send the man forward to any spot at a convenient distance in the direction of the work you intend to level, instruct him to hold the staff upright, turn the instrument round carefully, and note the height the cross hairs will show upon the figure staff. It is to be remembered that it is not absolutely necessary to plant the staff or instrument in a direct line from the bench mark to the first sighting peg which you intend driving into the roadway; they should be placed in the best position that can be chosen. Take advantage, where the ground suddenly un-

the above example, the exact depth to be sunk down can be obtained by deducting the height the sewer is to run above the datum line. For example, your sewer falls 5ft. in 1000 yards. At A the section shows the bottom of your sewer is 10ft. above your datum; deduct this from the 70ft. which is shown as the total height of the surface above datum, and it shows you must sink a shaft 60ft. deep; whereas at L, which is only 40ft. from the datum to the surface of the ground in consequence of the fall of the sewer, viz., 5ft., and this being the highest end, it is only necessary



dulates, of the lowest point of the staff in one direction and the highest in the other.

To give an example of the method of calculation, the height observed when the figure-staff is held against the bench mark at K is 6in. Upon turning the instrument round and reading the height upon the staff when placed at L, it will be found to measure 5ft. 6in., deduct the lesser from the greater and the difference in height will be found to be 5ft., i.e. the point L is 5ft. below point K, or, in other words, the height above the datum at L is 5ft. less than is shown at K.

You then proceed in the same way, down or up hill, until you get upon the line of route. You must then work as before along the line of route, taking the differences in height at the various distances, especially wherever the ground rises or falls. A peg or stake about 2ft. by 1½in. by 1½in., or 2ft. by 2in. by 2in. should be driven wherever you place your figure-staff, and the various heights should be noted upon your drawings or in a levelling book. These pegs are best driven by the side of the road or sewer, so that they are not disturbed, and can be used when checking over your levels as the work proceeds.

Most surveyors, especially when pegging out ground which is fairly level, prefer to save time and trouble in adjusting the instrument at short distances to take their sites a considerable distance apart, and put in their intermediate stakes by means of boning rods. Care must be taken in doing this to hold the rods upright.

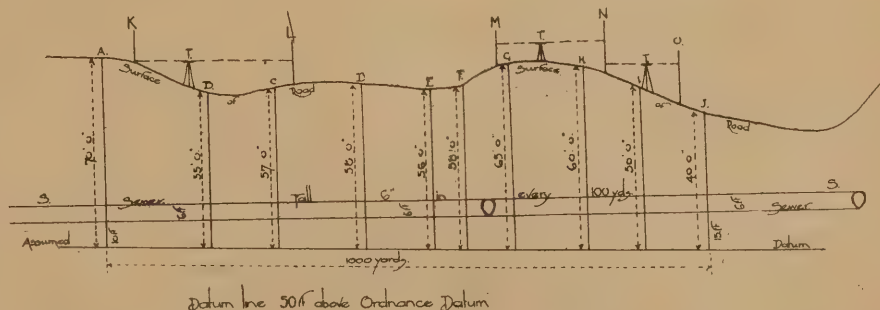
The method of using these rods is, first, with the assistance of a spirit level, drive two pegs into the ground until they are perfectly level, then drive a third peg gradually into the ground until the observer at the first stake can see the top of each head of these boring rods in a perfect line with each other. Continue the operation by removing the first rod forward. Any inclination in the ground can be found in a like manner by setting the first two pegs the number of inches apart required in a certain length. This method can be adopted for levelling from side to side of a road which has an inclination sideways when an instrument is not available; but for long lengths a theodolite or dumpy level is necessary.

Having obtained your various heights above datum by deducting the differences as shown in

to excavate 25ft. to get down to the level of the bottom of the sewer at this point.

Having by these methods of adding or deducting from the dimensions shown above datum upon the section obtained the necessary levels, most surveyors drive pegs usually where a shaft is going to be sunk on either side of the trench. A long parallel straight-edge placed across these pegs will enable the surveyor by careful measuring from the underside to drive a peg at the bottom of the shaft, from which the excavators or miners who drive the tunnels can level. Their method of doing this is as follows: The fall to be given is, say, 6in. in every 100 yards, or ½in. in every 10ft. A straight-edge is then made, which is

Longitudinal Section.



out of the parallel ½in. in its length. By placing the narrow end upon the peg at the higher end of the length of sewer and levelling the top edge of the straight-edge exactly, the exact fall can be obtained. The workmen driving the same tunnel from the lower end have an exactly similar straight-edge, but they reverse the process and place the widest end upon the peg which is driven in their shaft. In a sewer of any great length, if too deep to pay for excavating as open cutting, it is usual to sink several shafts several hundred feet apart and drive tunnels from each end so as to meet in the centre.—ED.

Correspondence.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In the article entitled "Practical Carpentry and Joinery" the botanical name of pitch pine is given as *Pinus Australis*, whereas "Rivington's Notes," Vol. III., gives it as *Pinus rigida*, while Colonel Seddon, in his "Builders' Work," agrees with Newland in "The Carpenter and Joiner's Assistant," by giving it as being *Pinus resinosa*. I should like Mr. Ellis to point out, if he will, the difference in the varieties named; or are all three names used by botanists to describe one species, or rather one single variety of tree?

Also would Mr. Ellis, before he concludes his description of woods, kindly give a few lines about satin walnut, which is very seldom mentioned in standard text books.

I am, yours truly,

A. R. ECNAN.

121, Lee Road, Blackheath.
September 18th, 1897.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—In reply to your correspondent, A. R. Ecnan, there are two distinct varieties of the pitch pine, *P. rigida* and *P. Australis*; the former, growing in the Northern States and Canada, is not now exported in any quantity, which was my reason for not describing it. It is a very inferior timber to its southern congener, and may be distinguished by its smoother bark, softer and straighter grain, lighter colour and weight. It is usually spongy at the heart; the sapwood is white. That of *P. Australis* is greenish yellow. This wood is known in America as Georgia pine and turpentine tree; not to be confounded with *Syncarpia laurifolia*, the turpentine tree of New South Wales. *Pinus resinosa* is another name for the red pine of Canada (*Pinus rubra*). I find on reference to my Laslett that no mention is made of satin walnut, so I give the following particulars relating to that wood. The satin walnut, white walnut, or butternut (*Juglans cinerea*), a large and lofty tree, flourishing in the valley of the St. Lawrence, Ontario, Georgia, and Arkansas. The wood is light, soft, rather coarse grain, easily worked, satiny lustre, takes high polish, medullary rays, thin and obscure colour, a bright light brown, turning dark with exposure, sapwood grey; the inner bark used as a mild cathartic medicine; also a yellow dye; a cabinet wood.

A to J. lines showing depths given on sectional plan
S. line of sewer
T. theodolite levelled to get various heights

For further information relative to the above and cabinet woods see Marshall Ward's edition of "Laslett's Timber Trees" (Macmillan and Co.)

Yours truly,
GEO. ELLIS.

LAST week a new bridge over the River Lowther at Askham, erected by the Westmorland County Council at a cost of over £2000, in addition to the value of the stone, was opened.

SOCIETY MEETINGS.

Northern Architectural Association.—The members will hold an excursion meeting in Newcastle on Saturday next, when the buildings inspected will include Jesmond Parochial Hall, St. Jude's Church, and Sheffield Board School. The Association again offers to students (and associates not in practice, nor yet 25 years of age) a first prize of £2 2s., and a second of £1 1s., for the best set of drawings or "testimonies of study," as required by the R.I.B.A. to be submitted for its final examination. Similar prizes will also again be given for the probationary work for the intermediate examination.

The Glasgow Architectural Association.—At a recent meeting presided over by the vice-president, Mr. G. S. Hill, Mr. James A. Morris, the honorary president, delivered a lecture on "Attainable Ideals." Mr. Morris had on the walls a very interesting collection of working drawings, which he had specially obtained from some of the leading architects, including the late John D. Sedding, John Belcher, Ernest George and Peto, Ernest Newton, C. F. A. Voysey, R. Schultz, Balfour and Turner, and Dunn and Watson. The lecturer, after expressing his gratefulness for the honour done to him by the Association in electing him as its honorary president, took the drawings around him, which he said were better than many lectures, as his theme. He said: "The good influence of John Sedding for purity and gentleness, love of his art and mankind, and all that goes to the making of a true and simple artist, will not be interred with his bones. His drawings upon our walls show abundantly his vivid imagination, his keen desire for perfection and the infinite labour he gave in seeking it, his nervous directness of touch, his breadth, simplicity, and power." He was sorry that he had no drawings by Norman Shaw, who had written him that drawings were only a sort of alphabet with which to instruct the builder, and when he was done with them they should be burned, as apt to mislead people. The lecturer maintained that high ideals and noble thought would elevate and ennoble an architect's work, however great the influences restraining him were. He advised his hearers to study from Nature—to learn the subtle beauty and strength of the human figure, which was a mine of purest gold. From these they would learn that the greatest dignity was ever simplest, and he said "if you ever receive that truth and become imbued with it, your buildings, be they great or small, would carry out the same idea."—The lecturer was warmly thanked for his remarks.

The Trustees of the Sydney Art Gallery are making arrangements for an exhibition of Australian pictures in the Grafton Galleries, London, in April, 1898.

Our Cardiff correspondent writes:—The strike of Barry navvies has terminated with the men resuming work on the old terms. Nine weeks ago 1300 men struck at the works in connection with the new dock at Barry for an advance in the minimum rate of wages from 5½d. to 6d. per hour, and also the adoption of a code of rules.

The Post Office is laying an underground telegraph cable from London to Birmingham. Work has been begun at Watford, and about nine miles of cable have been laid on either side of the town. The cables are drawn into 3in. cast-iron pipes, thirty miles of piping having already been put down. It is intended to use the dry air system to keep up the ventilation of the line.

The Markets and Fairs Committee of the Bradford Corporation has considered plans for the erection of an Art Gallery in connection with the proposed alterations of the markets in Rawson Square. It is proposed to devote the whole ground space to the markets extensions, but to build overhead on the corner of the site a new Art Gallery, with lock-up shops beneath. The scheme was left over for future consideration.

THE QUARRY BANK MINES.

IT would appear that the agitation with regard to the Quarry Bank mines is definitely coming to a close, the local urban council at Quarry Bank having passed a resolution rescinding a motion to send to the Local Government Board a full report of the position of the district in consequence of the mining operations of Lord Dudley. Mr. Shaw, the mover of the resolution and secretary to the property owners' committee, explained that when the scheme of the property owners to purchase the mines, and so save their premises, fell through, owing to some of their number standing aloof, they resolved to make a final effort to save the buildings on the surface. Counsel's opinion was taken as to their legal rights, but this was against them, and a large bill of costs was run up. As the public had expressed so much interest in the question, an appeal was made for help. Mr. Shaw observed that all that the interested and sympathetic public contributed was £5. Compromise was then deemed the best course, and Lord Dudley's agents, being approached, were found willing to assist them, the assistance being confined to those who had agreed to join in the purchase scheme, and with the understanding that the agitation should cease. The terms were accepted, a sum of money was deposited in the hands of a committee of property owners, and the advice of experts had been given as to the protection of properties. As a result of the understanding come to, the belief was expressed that the mines were being worked at Quarry Bank with less relative damage than is the case in the ordinary mining districts of the Black Country. So far as the principal property owners are concerned, the agitation will not go on.

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DAMAGES AGAINST DESERTING BRICKLAYERS.

At the Selly Oak Police Court a claim by Messrs. James William and William George Banbury, builders, of Newport, Mon., for damages against William and Arthur Peacock, bricklayers, was heard recently. Mr. Stubbs stated that the plaintiffs entered into an agreement to build forty-four cottages at Bournbrook, and in consequence of the scarcity of bricklayers found it necessary to bring over several men from Newport. The defendants, who were amongst the number, signed an agreement to work for twelve months at 50s. a week, and Messrs. Banbury paid their fares to Selly Oak, and gave them money in advance. They worked from August 23 to September 4, and then left, giving as their reason the fact that two apprentices were employed in the work. Defendants were very good workmen, and in consequence of their leaving complainants had been put to great inconvenience, and the work had been stopped for three days.—The Bench made an order for the defendants to pay £5 each damages and costs, at the rate of 10s. a week.

AMALGAMATION OF POTTERY FIRMS.

Messrs. Morrison, Ingram, and Co. Ltd., of Hygeia Works, Manchester, announce that they have converted into a private limited company their own business and the business of Messrs. Staley Bros., of Midway Pottery, Staffordshire (with whom they are amalgamated). It is the intention of Messrs. Morrison, Ingram and Co. to extend and re-model Midway Pottery, building increased foundries, sanitary engineering workshops, and sanitary pottery works upon recently-acquired land, upwards of eight acres in extent, and situate in Tifford Park, near Manchester Docks. The increased facilities which the proposed works' extension will afford will no doubt be favourably regarded by the Company's patrons, whilst the works extension must be regarded as a healthy sign of the times.

DISPUTE BETWEEN LOCAL AUTHORITIES.

The Local Government Board has decided a question of considerable importance as affecting the powers and rights of certain Town Councils. The Blandford town authority gave a tradesman permission to bring out his shop window over the pavement some 15in. to 18in., to be in a line with like windows on either side. The County Council, who contribute towards the maintenance of the highway, demanded that the projection should be put back, as being an encroachment on the public footway. The Town Council refused to comply, considering that its powers and rights in this connexion had not been abrogated by alliance with the County Council for the purposes of the maintenance of main roads. The latter body thereupon withheld the sum of £31, due in respect of the portion of the highway in question, until the window was displaced. The result of the dispute was an appeal to the Local Government Board, which has supported the Town Council and ordered the county authority to pay the sum withheld and the cost of the inquiry.

CLAIM AGAINST A CONTRACTOR.

At the Wigan County Court last week, before Judge Jones, Thomas Beardsworth, a labourer, of 1, Edith Street, Wigan, sued Wm. Winnard, contractor, of Wallgate, for the sum of £178 18s., as damages for personal injury under the Employers' Liability Act. The plaintiff set forth that Beardsworth was a workman in the defendant's employ, and was injured through a wagon full of earth tipping up and emptying itself on him. The wagon was part of the plant used by the defendant in his business, and was defective in that it had no catch on it, and that such defect arose from or had not been remedied owing to the negligence of the defendant or his foreman or manager.—The Judge found that there was no defect and no negligence, and therefore gave a verdict for the defendant.

MESSRS. HARTLEY AND SUGDEN, LTD.

Messrs. Hartley and Sugden's supplementary catalogue, just to hand, covers a collection of boilers varying much in pattern and design, but resembling one another in a very important particular—the large proportion of heating surface, which, of course, is the secret of a successful boiler. Messrs. Hartley and Sugden have attained a marked success in their treatment of boiler heating systems, and many of their designs are very well-known in the trade. There are, however, one or two patterns illustrated in the present catalogue to which we would refer. Firstly, to the "Eiffel" and the "Lion." These are new and powerful hot-water heating boilers which, we understand, have proved very satisfactory in work. The larger sizes of the "Eiffel" are made with bent tubes welded into the fire-box, which add valuable heating surface and give rapid circulation of the water. The "Lion" is arranged with shallow fire-box of good diameter, the tubes being placed so as to give the best results from the fuels used. Three other designs of boilers—the new independent "Lawrence," the "Effective" and the "Scorpion"—also claim attention. We are assured that they will be found much more effective, at the cost, than the American cast-iron boilers, and being made of wrought-iron, are better adapted to withstand the strains of a variable climate. They are each fitted with an automatic regulator, and are very economical in fuel. Among the other boilers comprised in the catalogue are the well-known "Climax," the "Excelsior,"

the "Monarch," the "Trentham," the "Duchess," the "Stanley," &c.

PHRAHZIT—A NEW MATERIAL FOR FLOORING, ETC.

Specimen patterns of the new Phrahzit have been submitted for our inspection. We have also seen reliable testimony as to the merits of the new invention. Phrahzit—a new patented material for flooring, roofing, paving yards and footpaths, wall decorations, strong rooms, etc.—has many advantages to recommend it. It is a composition of very attractive appearance, is very light, impermeable, and fireproof, and may be easily and cheaply laid in a single sheet of any desired size, or in tiles or mosaics. It can be made in any colour, and, within forty-eight hours of laying, sets to the hardness of stone. Then, Phrahzit has the recommendation of the sanitarian. The inventor, Mr. Joseph T. Syek, of 63 and 64, Chancery Lane, W.C., claims for it, on sanitary grounds, a superiority over any floor or wall covering material yet introduced. Its durability, too, may be argued from its impermeability and fireproof qualities. And, as a decorative material, the use of Phrahzit promises to be equally advantageous. Being of a plastic substance, the material can be moulded and shaped into any design; it, therefore, lends itself to the formation of ceiling and wall decorations, pilasters, balustrades, and other architectural embellishments. Very good effects may be obtained in

wall decorations, but its use in this connection may very wisely be influenced by considerations of its non-inflammable nature.

THE DECORATIVE WORK AT THE NURSES' HOME, DUNDEE.

The inside decorative work of the Nurses' Home at the Royal Infirmary, which was entrusted to Messrs. P. and A. Davie, Victoria Road, is now nearly completed. Throughout it is of a most artistic character, and reflects credit alike on designer and executor. The ceilings and walls of the bedrooms—thirty-seven in all—are covered with a pretty, cheerful paper. The woodwork is grained light wainscot, the floors having bog oak margins. At the ends of the corridors the bathrooms are situated. These have all tile floors and walls, the woodwork being of varnished pitch pine. The drawing-room, a large and commodious apartment on the ground floor, has a panelled ceiling, painted and decorated to match the paper. There is also a handsome 2lin. frieze underneath the cornices, which are done up in a most artistic style. The woodwork is grained walnut, varnished with carriage varnish, the floor having a margin of 2ft., stained bog oak. The sitting-room and library are decorated in a similar manner. Pretty warm tints are to be seen on the staircase and lobby, which are painted dado, with lines and bands underneath, the floors having a beautiful dark-stained margin. The entrance hall has a tiled floor, with decorations similar to the staircase and lobby. Altogether, when completed, the Home, which is the gift of Sir William Ogilvy Dalgleish, Bart., will present a most attractive interior.

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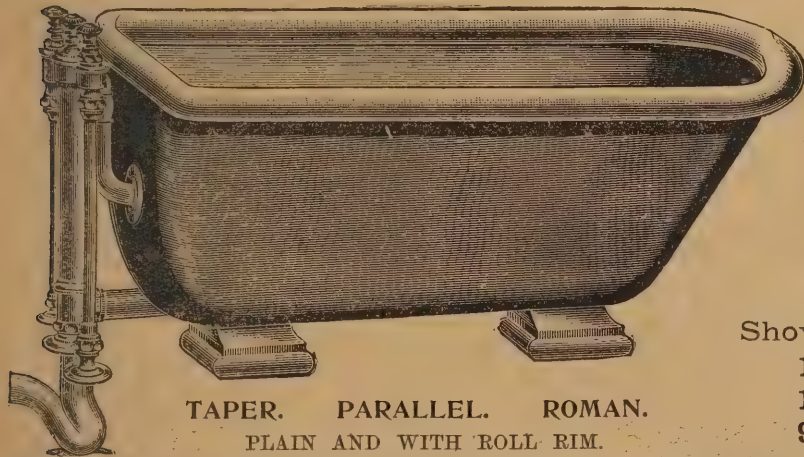
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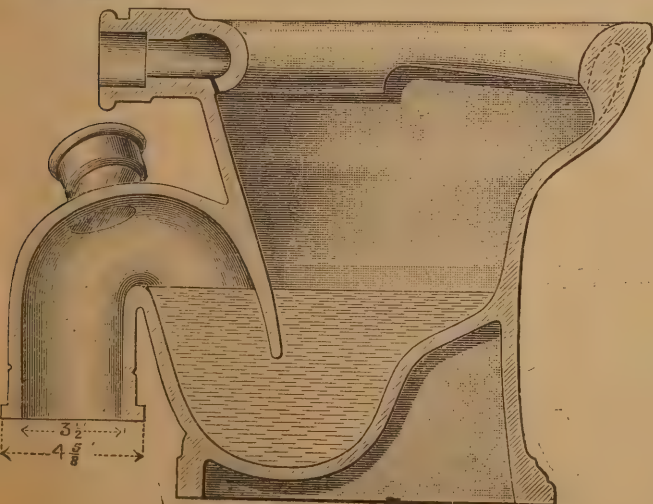
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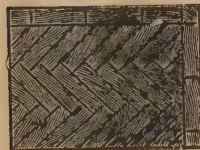
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Information from accredited sources should be
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Kearley, C. F.	7,994 0
Nye, Exors. of	7,963 0
Goole and Son	7,800 0
Blackburn, W.*	7,750 0

* Accepted subject to the approval of the Education
Department.

AYLESBURY.—For the construction of retaining walls
to terraces in Buckingham-road and Walton-road, for the
Urban District Council. Mr. J. H. Bradford, surveyor, 2,
Rickford's Hill, Aylesbury:—

Buckingham- road.	Walton- road.
Senior and Clarke	£252 8 0
W. Y. Green & Co., Walton- street, Aylesbury*	185 0 0
H. T. Grimsdale	£435 0 0

* Recommended for acceptance.

BEAUMARIS.—For additions to the County School, for
the Governors of Beaumaris County School. Mr. Jos Owen,
architect, Menai Bridge:—

W. Daniel	£960
Jones and Williams	920
E. Parry	£800
R. Owen, Menai Bridge*	785

* Recommended for acceptance.

BEDFORD.—For sewerage and road-making on the
remaining portion of the "St. Outhbert's Glebe Building
Estate," Bedford, for Messrs. Hobson and Martin. Mr.
Richard Lund, surveyor, Bedford:—

H. A. Williamson	£1,265 0 0
G. Harrison	1,257 0 0
G. E. Fathers	1,242 17 7
T. H. Coleman	1,233 4 10
Rootham and Jeakings	£1,172 6
G. T. Jarvis*	1,157 19 0

* Accepted.

BRIGHTON.—For proposed new lithographing and
printing works, Meeting House-lane, Brighton, for Mr. F. V.
Hadow. Mr. William C. F. Gillam, architect, 162-163,
North-street, Brighton:—

W. Botting and Son	£1,560
W. Brown and Son	1,459
J. Barnes	1,431
Manwaring and Son	1,428
G. Lockyer	£1,416
Holloway Bros.	1,393
Lynn and Son	1,344
T. and W. Garrett*	1,315

* Accepted provisionally.

BEXLEY.—For the construction of about 653 yards of
pipe sewers, Halfway-street-road and Days-lane, for the
Bexley Urban District Council. Mr. E. Reeve Boulter,
surveyor, Council Offices, Bexley Heath:—

Quenast Granite.—C. M. Manuelle, Lime- street, E.C.	
Kentish Ragstone.—Beurteast and Sons, Maidstone	
Surface-picked Flints.—Thomas Wood, Crockenhill, Kent	
Granite Curb and Setts.—Gordon and Sons, Annalong, Newry	
Water White Oil.—John Snowden, Bexley Heath	
Disinfectants.—Sanitas Company, Beth- nal-green, E.	
Manganate of Soda.—Kirkpatrick, Barr, and Co., Cullum-street, E.C.	
Stoneware Pipes.—Wragg and Sons, Swadlincote	
Hire of Steam Roller.—Thomas Wood, Crockenhill, Kent	
R. and J. Butler, Bexley Heath	
Amos Penfold, Bexley Heath	
Edward Watkins, Bridgen, Bexley	

At
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of
Prices

BRIGHTON.—For proposed new kitchen and sanitary
improvements at "Dann's Creamery," 200, Western-road,
Brighton, for the South of England Dairies, Limited. Mr.
William C. F. Gillam, architect, 162-163, North-street, Eigh-
ton:—

J. Barnes	£701 10
E. Watts	658 0
W. Brown and Son	£596 0

* Accepted.

CHESTERFIELD.—For the execution of private street
works, Shepley-street, and Malkin-street, for the Chesterfield
Corporation. Mr. H. E. Featherstone, borough surveyor,
Chesterfield:—

Clarke Bros.	£525 0 0
G. Hall	482 14 9
E. Peck	445 0 0
R. Holmes and Co., Chesterfield*	£399 0 0

Clarke Bros.	£235 0 0
R. Peck	230 0 0
R. Holmes and Co., Chesterfield*	£196 0 0
G. Hall	184 2 0

* Accepted.

ELGIN.—For the erection of two blocks of artisans'
dwellings, at Maisonsden, for the Elgin Building Co., Ltd.
Mr. G. Sutherland, architect, Elgin:—

Carsonry.—A. McKerron	
Carpentry.—Lillar and Sutcliffe	
Plastering.—A. Melver	
Plumbing.—Lyon and Sons	
Slating.—E. Ogilvie	
Painting.—J. Barnes	
£2,060	

[All of Elgin.]

HANWELL.—For erecting a pair of semi-detached villas
in Cambridge-gardens, for Mr. John Harris. Messrs.
Howgate, Leeds, and Keith, architects, 70, Gower-street,
W.C.:—

B. Myning and Son	£1,658
J. Nye	1,493
A. J. Browning*	£1,000

* Accepted.

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KING'S NORTON.—Accepted for erecting wrought-iron entrance gates, 8ft. boundary, and ornamental railing, for the Guardians of the King's Norton Union. Mr. Joe H. Webb, C.E., 23, Valentine-road, King's Heath, Worcester-shire. Quantities by engineer.—
Bayliss, Jones, and Bayliss, Wolverhampton £250
[Engineer's estimate, £789.]

KING'S NORTON.—For building a dwarf wall, piers, &c., for the Guardians of the King's Norton Union. Mr. Joe H. Webb, C.E., 23, Valentine-road, King's Heath, Worcester-shire. Quantities by engineer.—
T. Loud £169 10 0
W. Bishop, King's £148 19 0
F. Walward 166 4 1
Ed. J. Charles 185 0 0
[Engineer's estimate, £143.]

LONDON.—For erecting four houses on the Castle Hill House Estate, Ealing. Messrs. Howgate, Leeds, and Keith, architects, 70, Gower-street, W.C. Quantities by Mr. L. J. Williams.—
Higgs and Hill £12,494 0
G. W. Pearce £11,708 0
W. Whiteley 12,485 0
Adamson and Sons 11,578 0
E. Lawrence and W. Nash 11,345 0
Sons 12,335 0
J. Nye 10,976 10
*Accepted.

LONDON.—For erecting dwellings, stables, and stores, Wharfedale-road, King's Cross, N., for Messrs. W. Plaistow and Co. Messrs. Howgate, Leeds, and Keith, architects, 70, Gower-street, W.C.—
W. Whiteley £3,496
G. S. S. Williams and Sons* £2,835
Clarke and Mannoch 3,047
Lawrence and Sons 3,040
*Accepted.

LONDON.—For erecting a billiard-room, &c., at Park House, Holly Park, Crouch Hill, N., for Mr. H. Grimstead. Messrs. Howgate, Leeds, and Keith, architects, 70, Gower-street, W.C. Quantities by Mr. L. J. Williams.—
W. Whiteley £1,089
Lawrence and Sons £908
Williams and Son 977
G. L. Kirby* 837
Clarke and Mannoch 927
*Accepted.

LONDON.—For bar fittings, &c., at the "Kentish Drovers, Old Kent-road, for Mr. Carpenter. Messrs. Waring and Nicholson, architects, Parliament-street, Westminster.—
W. L. Simpson & Mabe £233
Saunders £231

LONDON.—Accepted for building shops and flats at 5, 7, 9, and 11, Lower Kennington-lane, S.E., for Mr. E. Strudwick. Mr. Percy Field, architect.—
John Weibking and Sons £2,125

LONDON.—Accepted for about 5000 yards super of hard-wood paving, Stroud Green-road, including excavation, concrete foundation for the Hornsey District Council. Mr. E. J. Lovegrove, engineer and surveyor, Southwood-lane, Highgate.—
Wm. Griffiths, Kingsland, 15s. 7d. per yard super.

LONDON.—For alterations, repairs, &c., to the "Goldsmith Arms," East Acton, for Messrs. Fuller and Company, the Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick.—
Poore and Son £285 0
L. Leeder £198 17
Wenborn 200 0
Drainage.

LONDON.—Accepted for alterations to the "George IV.," Chiswick, for Messrs. Fuller and Co., Griffin Brewery, Chiswick. Mr. J. Van. Mr. J. Hume, architect and surveyor, Chiswick.—
T. H. Adamson and Son £1,273 10

LONDON.—For repairs and alterations at "The Angel," Hammersmith, for Messrs. Fuller and Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick.—
Chamberlen Bros. £109 0
D. Bailey £178 0
T. Bendon 103 10
Heywood 100 0

LONDON.—For stoneware pipe sewers, View-road, Highgate, for the Hornsey District Council. Mr. E. J. Lovegrove, engineer and surveyor, Southwood-lane, Highgate.—
Williams & Son, £906 1 9
T. Adams £791 12 5
F. A. Jackson and J. E. Bloomfield 776 8 0
Son, Ltd. 887 0 8
J. A. Dunmore, 628 15 6
Neave and Son 887 0 0
Crouch End*
*Accepted.

LONDON.—For road works, Indervick-road (3rd section), for the Hornsey District Council. Mr. E. J. Lovegrove, engineer and surveyor, Southwood-lane, Highgate.—
Williamson and W. Neave & Son £4,579 0 0
Sons £1,672 3 0
Thos. Adams 1,481 0 10
F. A. Jackson and J. E. Bloomfield, 1,335 1 6
Son, Limited 1,638 8 10
Tottenham*
*Accepted.

LONDON.—Accepted for tar-paving work, Gordon-road Workhouse, Peckham, for the Guardians.—
F. G. Glover, 17, Milton-road
Sheppard & Co., Milton-street, Southend-on-Sea £257

PENSFORD.—For the erection of new schools, for Stanton Drew School Board. Mr. J. Ace Beynon, architect, Coleford, Bath.—
Hughes and Weeks £1,410
W. A. Shipp, Stokes £1,062
S. R. Gorvett 1,376
Croft, Bristol* 1,045
Stephen Hinton 1,125
Adams and Jefferies*
M. Durnford 1,100
*Accepted.

PONTLOTTYN (Glamorgan).—For erecting sixty-nine dwelling-houses, for the Building Club. Mr. W. Davis, architect, 6, Heol Evan Wynne, Pontlottyn, via Cardiff.—
Per House.

E. Rowlands £156 0
M. R. Rowlands* £143 0
Jeremiah Bowen 153 0
J. C. Davies 143 10
Francis Rhys 152 0
J. Monks and Co. 143 0
J. James and Sons 149 18
John Morgan 140 0
W. Williams and Sons 149 10
Griffiths Bros., Ceme- 139 10
Davies Bros. 147 0
tery-road, Trealawt
*Cemented fronts.
*Accepted.

PONTYCYMMER (Garry Valley).—For paving, curbing, &c. Richard-street and High-street, for the Ogmere and Garw Urban District Council. Mr. H. Dawkin Williams, surveyor, Blackmill, R.S.O.—
Richard-street.

Mark & Williams, £890 10 4
Jenkins & Rattray £489 7 9
Batchelor and Hall 515 7 8
David John Davies 435 19 4
Jonathan Maddocks 508 18 8
Barnes & Chaplin.. 382 9 6

High-street.
Mark & Williams, £500 14 8
Jonathan Maddocks £276 18 9
Rattray & Jenkins 310 8 0
Barnes & Chaplin.. 266 19 4
Batchelor and Hall 297 12 3
David John Davies 262 17 1

RHAYADER (Radnorshire).—For the erection of a new north aisle and new roof to nave, &c., to Rhayader Church. Mr. S. W. Williams, architect, Rhayader. Quantities by architect.—
Thomas Lant £1,552
Meredith £1,443
Smith 1,511
Davies and Son 1,368
Morgan 1,477
Lloyd, Rhayader* 1,180
*Accepted.

RICHMOND.—For rebuilding "The Angel and Crown" for Messrs. Fuller and Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect, Chiswick.—
S. Hunt £2,025
Scole and Son £1,780
T. H. Adamson & Son 1,974
Speechly and Smith 1,775
J. Dorey and Co. 1,840
[Exclusive of fittings.]

RYTON.—For the construction of a culvert and road improvement at Bradley, for the Urban District Council. Mr. J. P. Dalton, engineer, Council Office, Ryton-on-Tyne. Quantities by the engineer.—
M. D. Young £270 9 0
R. Babe £162 3 2
G. T. Manners 193 0 0
A. Tench, Blay- 155 11 5
W. Sprout 170 0 0
don (accepted)
[Engineer's estimate, £100.]

TAUNTON.—Accepted for additions, Magdalen-street premises, for the Taunton Co-operative Society. Mr. F. W. Roberts, architect, 2, Hammet-street, Taunton. Quantities by the architect.—
T. Manning, 10, St. James-street, Taunton £584
[Two other tenders received.]

WILTON.—For building a new laundry and for other works at the workhouse. Messrs. Harding and Son, archi- tects, 51, Canal, Salisbury. Quantities by architects.—
E. Witt £591 9 6
T. Elliott £470 0 0
Webb and Co. 545 0 0
P. Tryhorn 448 10 4
Vincent & Folland 429 0 0
T. Dawkins, Bar- 412 0 0
E. Hale 498 0 0
ford, St. Martin*
J. Whately 497 0 0
*Accepted.

WALKERN (Herts).—For the erection of a detached house at Walkern, Herts. Mr. J. Randall Vining, architect and surveyor, 89, Chancery-lane, W.C.—
W. French £1,199
F. J. Bailey £1,060
J. Redhouse 1,198
J. A. Aldridge* 947
F. Newton 1,090
*Accepted.

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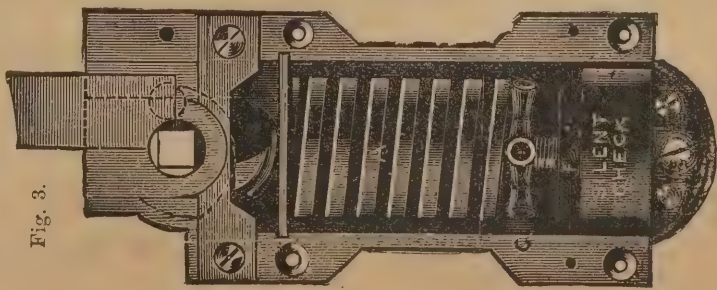
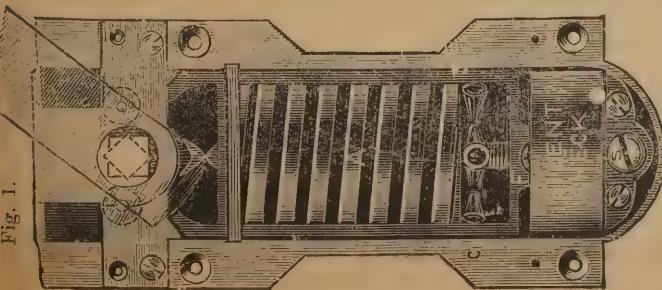
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City Engineer and Surveyor.

St. Mary's Hall, Coventry.

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St. Mary's Hall, Coventry.

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Council Offices,
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Sept. 20th, 1897.
Clerk to the Council.

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IMPORTANT
EDITORIAL ANNOUNCEMENTS.

A WEEKLY ARCHITECTURAL CAUSERIE.

The Editor of "The Builders' Journal" has pleasure in announcing that, after this issue, the short, terse Leaderettes, which have become so prominent a feature of "The Builders' Journal," will be increased in number, a wider range of subjects being thereby covered. These Articles will be contributed by, amongst others: Messrs. E. Ingress Bell, H. B. Creswell, Howard Inc, A. R. Jemmett, H. V. Lanchester, C. E. Mallows, G. Ll. Morris, John E. Newberry, and Hugh Stannus.

The Editor also announces that a SERIES OF TECHNICAL ARTICLES, by Experts, entitled "PRACTICAL PAPERS," will be published, IN ADDITION TO THE SERIES in the Surveying and Sanitary Supplement issued weekly with the Journal. SETS OF WORKING DRAWINGS of Buildings in process of erection will also appear from time to time.

The Editor will also shortly announce the SCHEME OF PRIZES for ARCHITECTURAL SKETCHING in that NATIONAL TREASURE HOUSE, the South Kensington Museum.

MORE than passing Churchman and interest should attach to the views of Sir William Artist.

Richmond, as expressed at the Church Congress, and reported in our pages elsewhere. It could hardly be that one who has had such an exceptional opportunity for untrammelled realisation of his conception in the decoration of a noble church should fail to convey to his hearers a lively picture of the ideals that have guided him in his work. These, it is easy to see, are those of Gothic mysticism rather than the sensuous forcefulness of later times—a mysticism that, while most in harmony with the average churchman's interpretation of his religious life, to some minds constitutes a grave danger to our church in the possibility that, carried to excess, it divorces its votaries from the practical considerations of the outer world, and fosters an artificial environment tending to stifle the utility of any belief as an ethical guide to the generality. The artist is, however, the man on whom it is easiest to forgive

such an attitude, for it is one essentially characteristic of an introspective and imaginative temperament; as such he is, in the present day, the real survivor from the middle ages, and in fact the decorator of St. Paul's shows very clearly that he would have felt more at home among the great mediæval builders than among his present confrères: his sympathies do not seem even to travel as far as the great building on which his skill has been expended. The epicureanism of colour and line that distinguishes the work of the Renaissance is not for him, and Salisbury or Ely would have been a more congenial sphere for his labours. Sir William evidently strongly feels the futility of many modern ideals when he makes his attack on the commercialism of the present day, and he doubtless touched a sympathetic chord in his audience, but such an attack must, in the very nature of things, miss its mark. Those who are guided by no higher spirit will inevitably be incapable of discovering that their guide is

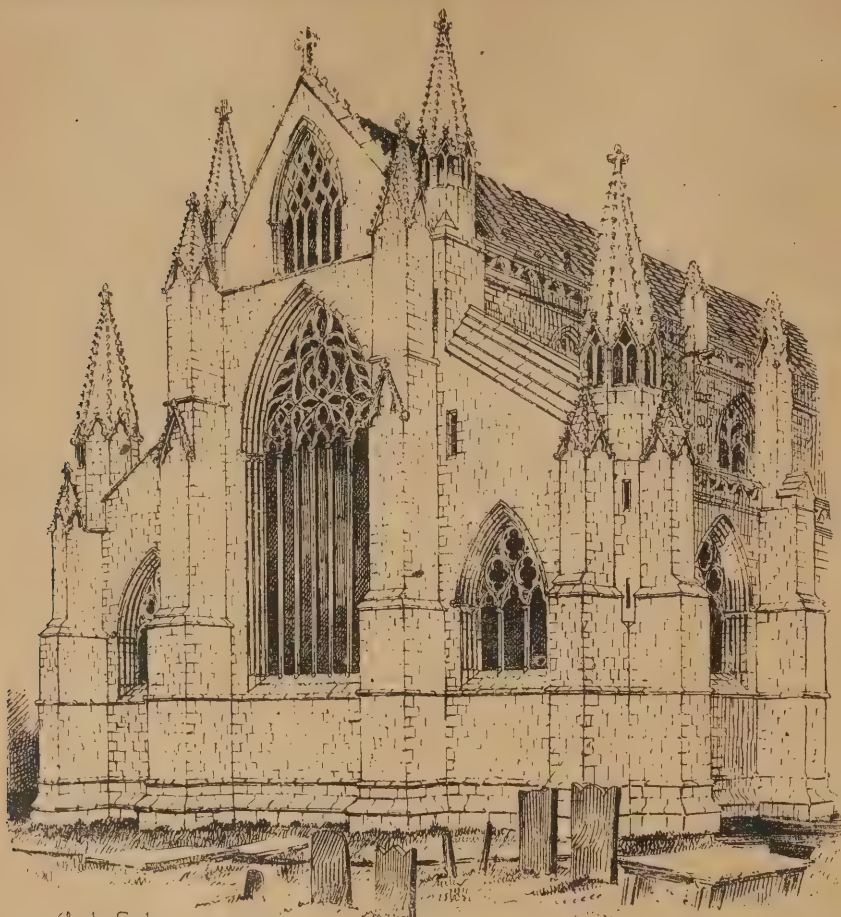
periods is foredoomed to failure. The choice of the subject title under which Sir William Richmond's remarks come—"Art and Architecture in the Service of the Church"—is an example eloquent of imperfect perception. An Art consciously subservient must be of the nature of a pose. How would our reverend friends relish it if we put the matter the other way round? "Religion in the Service of Art" would be, to the genuinely artistic mind, by no means a more one-sided way of expressing it; for the two, while, of course, inter-dependent, and subject to the same influences, can never be subordinated the one to the other without losing that spontaneity which is essential to all emotional expression. Some thought such as this seems to have been passing through our lecturer's mind when he makes his references to "styles" *versus* "style," but whether his views went so far is not clear from the report that lies before us. At all events, he made a very definite



LEDSHAM CHURCH. R. A. EASDALE.

but a phantom that ignores all paths leading to the higher development of the race; each age must work out its own salvation by harmonious evolution of its highest characteristics. Such an evolution may be helped forward by an intelligent comprehension of previous ones, but its course none can predict beforehand, and any attempt to draw it into lines that belonged to other

protest against the rehabilitation of dry bones that so frequently does duty for ecclesiastical decoration; if it be possible for the churchman and the artist to meet on equal ground, something better would surely result, but in an age in which the prevailing temperament is so far removed from mediæval romance and mysticism it is hardly probable that our conceptions, if spontaneous,



East End.
Selby Abbey.

September 1896
R. A. Casdale del.

will be in accord with those of other times. We generally find either a lifeless archaeological accuracy, or a lack of harmony between the decorator's ideals and his environment. When occasionally we come upon a man who can steer between these extremes, and who can enter, as nearly as the lapse of four centuries will permit, into the spirit in which our great churches were built, we may thankfully give him his opportunity. If we find him not, it will be better for our reputation with posterity that we should steadfastly refuse to do anything unlikely to enhance the religious character essential to the church of our ancestors.

RESTORATION AT GLOUCESTER.

THE Lady Chapel of Gloucester Cathedral, one of the finest specimens of Perpendicular style of Architecture in England, which has been closed for twenty-five years owing to the ruinous state into which it had fallen, was reopened last week after restoration. Ten thousand pounds have been spent in the restorative work at the Cathedral during the last few years. Dr. Spence, the Dean of Gloucester, gave an historical survey of the Lady Chapel, which, he said, was built from designs of monk designers of Edward of York and of Henry Tudor, and it had now been so restored that it would stand for centuries. But they were only on the threshold of the work of restoration, and he hoped to see the chapel again put on some of its ancient beauty and splendour. The marvellously beautiful but now disfigured reredos they dare not repair, but he would like to see the four great central windows once again filled with the richest glass the age could produce.

An important scheme has been formulated for the sanitary reformation of Bombay City, at a cost of five crores of rupees.

THE CONDITION OF THE PARTHENON.

“THE Parthenon is doomed!” Thus begins an article in your issue of August 14,” writes Professor Dr. Wilhelm Dörpfeld in last Thursday's Times, “which has created a sensation, not only in England, but throughout Europe. Is the Parthenon really doomed? Is this gem amongst the monuments of the world irreparably lost? Is it impossible to save it? As a student well acquainted with the Parthenon, and as a member of the committee appointed by the Greek Government to superintend the repairing of it, I think I may assert that the temple is by no means yet doomed. The condition of the structure is certainly not satisfactory. Earthquakes and fire, rain and sun, frost and heat, several bombardments, and more especially the unfortunate explosion of the Turkish powder magazine by the Venetians under Morosini in 1687, have all contributed to annihilate entirely large portions of the temple and severely to injure those still preserved, and even to destroy in many places the beautiful white marble. One has only to read the reports of the three distinguished European architects—the Englishman, C. F. Penrose, the German, T. Durrm, and the Frenchman, T. Magné—on the state of the temple in order to satisfy himself that the structure has indeed suffered severely, and that the condition of certain portions is even dangerous. But, according to the undeniably authoritative opinion of those architects, the damage is not so serious as your correspondent describes it, and on the contrary, the preservation of the existing structure for hundreds, and perhaps thousands, of years is still possible. One thing only is necessary—viz., that

THE PROPOSED REPAIRS

shall be carefully and expeditiously carried out. The same conclusion has been arrived at

by the committee of Greek and foreign architects and archaeologists to whom the Greek Government has intrusted the task of superintending them. As the opinion of all these experts with regard to the mode of restoration shows few divergencies, the work might be taken in hand at once, those repairs being undertaken first upon which all the experts are agreed. Last winter a solid scaffolding was erected along the western portion of the temple, in order, first of all, to replace the specially damaged epistylum beams of the opisthodomus by new ones. The stones required for this purpose had in part been already brought from Pentelicon to the Acropolis, and the machinery obtained for raising these huge blocks, and work was about to begin, when war unhappily broke out and arrested the progress of operations. The funds for the work of restoration were granted by the Greek Archaeological Society, which derives its large revenues from a lottery sanctioned by the State. This year, unhappily, owing to the disastrous war, the lottery has hardly produced anything, and the Society has consequently no funds at its disposal to prosecute the works. The repairs have, therefore, been temporarily interrupted, and who knows when they may be resumed? For the Parthenon this is a deplorable matter, and the consequences may be most serious should a severe earthquake shake the mountain rock on which it stands. Your correspondent then proceeds to point out how excellently, since the erection of the scaffolding, the remaining portions of the celebrated frieze, the wonderful masterpiece of Phidias, can be seen and admired, and suggests in this connection whether it would not be better to place

THE FRIEZE ITSELF IN A MUSEUM,

and to replace it on the temple by a copy. That suggestion I heartily endorse. Not only are the marvellous works of a Phidias exposed on the temple to a gradual process of disintegration under the influence of weather, but in their present position they cannot be properly seen and appreciated. Now, for the first time, from the scaffolding which enables one to approach and study them at leisure, their great artistic merit stands fully revealed. If a modern sculptor or architect could set them up about twelve metres from the ground, in a gallery a little more than three (sic) metres broad, he might well afford to disregard scoffers and critics. And must we allow valuable Greek originals, numbered amongst the finest sculptures of the world, to perish slowly in a place where they might very well be replaced by copies? Your correspondent's assumption that the Greek Committee has rejected the suggestion lest it should seem to justify *ex post facto* Lord Elgin's spoliation of the Parthenon, is erroneous, for it was the English member of the committee who combated the proposal. Moreover, Lord Elgin's action has been denounced not so much because he conveyed some of the sculptures into safe keeping in London, as on account of the barbarous manner in which he destroyed some parts of the temple—e.g., the mouldings of the south side—in order to remove the sculptures. In conclusion, your correspondent rightly praises the Greek Archaeological Society for the “wonderful progress” made in Greece with regard to the care bestowed upon the antiquities of the country. Certainly those who, having seen the Acropolis and the other ruins, and especially the museums, twenty years ago, revisit them now, must be amazed at the progress to be witnessed on all sides. In Athens the ruins are protected from injury by iron railings, and the museums, which used to be described as stables, can stand comparison now with those of London and other European cities. This progress is undoubtedly due in part to the Archaeological Society, but chiefly and in the first place to Mr. P. Kavvadias, the Director-General of Antiquities, especially since he has combined the secretaryship of the Archaeological Society with the direction of the Antiquities Department of the Ministry. His energy deserves recognition, and your correspondent should not have omitted to mention his name.”

STROLLING SKETCHES.*

No. 13.

By R. A. EASDALE, A.R.I.B.A.

ABOUT SELBY AND PONTEFRACT.

ABOUT three and a half miles east of Monk Fryston stands the world-famed Selby Abbey—with its grand Norman nave, and examples of all styles—and that monstrous incongruity, the Classic balustrading on top of tower.

I don't know which is the stronger feeling on visiting Selby—the admiration of our older forefathers' work, or shame at the evidence of the bad taste of the Renaissance architects. At any rate, the balustrading has one use—that of emphasising the value of the twelfth, thirteenth, and fourteenth century work, and the utter incompatibility of Classic and Gothic work, notwithstanding Mr. Stratton's defence of Wren's attempt on the west front of Westminster Abbey.

I have only had time to sketch the west and east ends, and these rather on too small a scale. A student with a good glossary in hand could profitably study all Gothic styles at Selby; the west front alone showing Norman work pure and simple in doorway; then Transition in arcade over; then Early English in upper windows, with perpendicular tracery rudely inserted in central window. The east end, of course, is wholly Decorated. The typical custom of running arch molds down to sill, and forming the round molds into shafts, with small caps and bases, are here in profusion; also the over use of crockets and pinnacles is here apparent, many of these having failed to stand our merciless weather. I would draw the student's attention to the wonderful flowing lines of the tracery of east window; in fact, the whole of this monumental abbey church is so full of points of engrossing interest to all archaeologists that I earnestly recommend all young students who wish to visit Selby to make arrangements to stay some days there, for a cursory half day visit is quite hopelessly inadequate for even a glance round.

Leaving Selby, our northernmost point, and travelling direct south to Birkin, we come across, perhaps, the most interesting and valuable parish church of its kind in England. This remarkable tiny edifice lies far away from railways or main roads (it is $3\frac{1}{2}$ miles from any railway station), and only country lanes lead up to and past it. This is the only reason I can assign for its being almost unknown in the architectural world. If it had stood near London or in the Midlands no doubt its plan and details would now be figuring in every text book and glossary.

The origin of this church is, as usual, somewhat hazy. One theory is that it was founded and built by the Knights Templar, which famous Order was granted the manor of Temple Hirst, near Selby, by Ralph de Hastings—Temple Hirst being in Birkin parish. As the date of this grant is 1152, the probability is that Birkin Church was commenced before the grant. Another theory—and one more probable—is that the church was erected by Norman monks or handicraftsmen brought over by Ilbert de Laci, who, as I have mentioned before, was Lord of Pontefract Castle—1081—and who, no doubt, would be instrumental in causing such churches as Kippax, Ledsham, Darrington, Campsall, and Birkin to be built by these men in order, as we know, to follow out the policy of all the Normans, that by doing this they would propitiate and win over the outraged Saxons.

Another indication that Birkin sprang from Pontefract and not from Selby is that the plan of the ruins of the private chapel inside Pontefract Castle is on exactly the same basis as at Birkin in the apse end. This I will treat of later on.

The original Norman church in plan was as follows: Aisleless nave with west tower, square chancel terminating eastward in a semi-circular apse. The walls of nave, tower, and

chancel are unbuttressed, but the apse has flat pilaster buttresses, stopping under a corbelled eaves cornice.

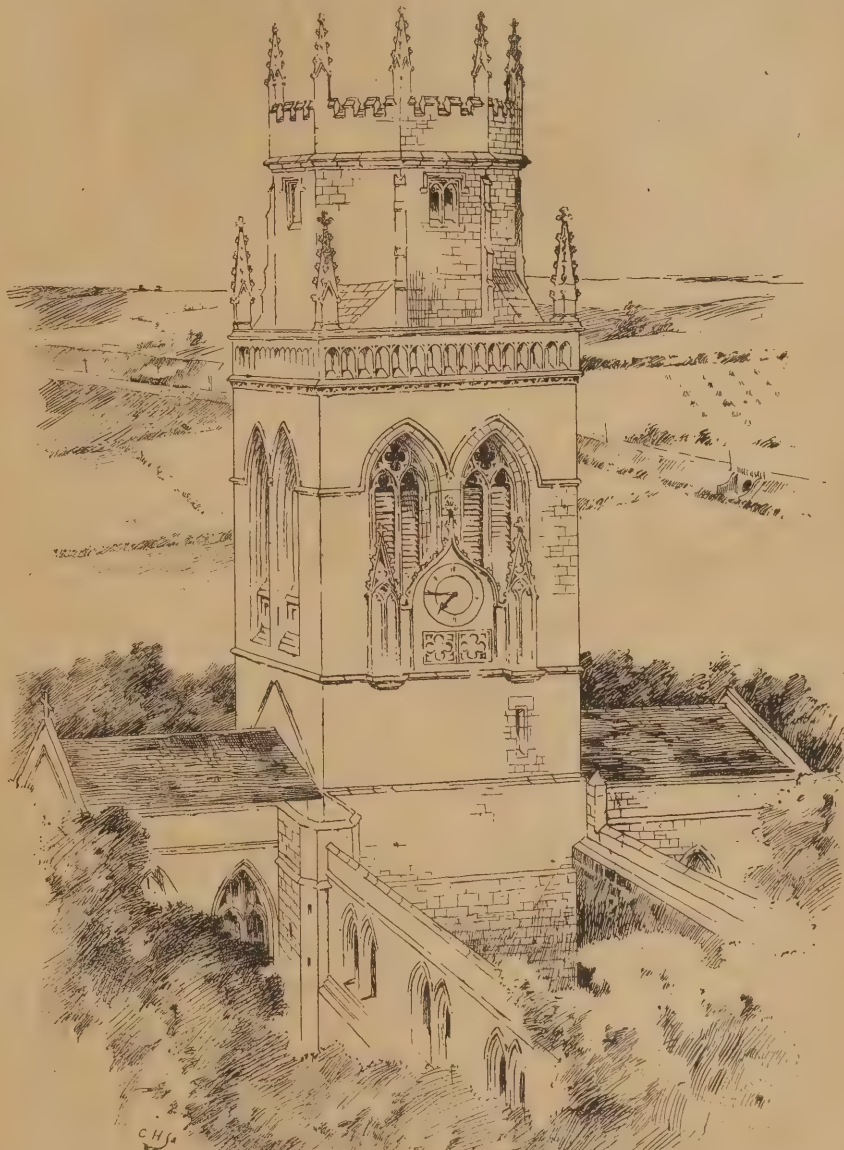
This apsidal termination is very uncommon in England, and although there are a considerable number of apses to Norman parish churches, by far the largest number (both in England and Normandy) have square east ends. The idea that Norman churches always had an apse is a very common misconception—probably only about one in eight had an apse.

The geometrical setting out of plan is very interesting. The chancel is a square of 16ft.

square stones set angle-wise, a survival of the *opus reticulatum* of the Romans.

The apse is the most interesting part of the church. It is planned for a ribbed vault which remains, and is a very interesting and early specimen of an apsidal ribbed vault in a small church.

The apse is divided into five bays, two straight and three curved. A transverse rib crosses the apse, the west side of the rib being placed on the springing line of the apse curve. This (combined with the tangential circle setting out above mentioned) fixes the position of the vaulting shafts at the springing of



ALL SAINTS CHURCH, PONTEFRACT. R. A. EASDALE.

6in. internally. The apse is set out by striking a circle of 13ft. 8in. tangential with chancel square (inner face). Internal faces of nave walls nearly correspond with external face of chancel walls.

The nave is a double square to inner faces of north and south walls, and outer faces of east and west walls. Tower a square of half the nave square. Height from floor to springing of apse, the width of apse. You will notice that the plan of apse in Pontefract Castle has been set out in the same way as at Birkin.

The arches throughout at Birkin are semi-circular. Capitals show varieties of scalloped forms, many combined with angle volutes.

The date of the Norman Church is about 1140, or probably later.

The priests' door, south side of square chancel, has a lintol, with semi-circular relieving arch, the tympanum being solid, of

the apse, giving a width of 5ft. 4in. centre to centre of shafts. This 5ft. 4in. width was repeated for the side bays of the apse curve, leaving a much wider centre bay (7ft. 5in.), the centre window being wider inside than the north and south windows. From the vaulting shafts on the apse curve two ribs spring, which meet in the centre of the semi-circular transverse rib across the apse springing. This was a common form of early ribbed vault for small apses. A very early example of this occurs at Tewkesbury in the apsidal chapel on east side of south transept. Similar examples exist in Normandy: Gueron (Calvados), division of three (like Birkin); Petit Quevilly (near Rouen), division of four; St. George's de Boscherville (near Rouen), division of five. In all these cases the radial ribs abut against the centre of the transverse rib.

The earliest actually dated example of an apsidal ribbed vault in England is that of the

* Essay read before the Leeds and Yorkshire Architectural Society.

chapter house at Durham, built by Bishop Geoffrey Rufus (1133—1140), but it is of a more advanced plan than that at Birkin. The two first radial ribs on each side intersect in a key, and do not meet on the transverse rib.

The section of ribs at Birkin is three rolls separated by fillets. Earlier forms of Norman ribs: one big roll on a flat, as at Peterborough; or flanked by hollows, as at Durham; or two rolls, with hollows, &c., as at Peterborough and Gloucester.

The triple roll section both with and without the fillets between the rolls, occurs in the south transept vault of St. Cross, Hants. (late twelfth century).

The vault cells between the ribs at Birkin have a domical curve generated by the semi-circular label of the windows which serves as a kind of wall-rib, and the ribs themselves are

the result at Birkin must have been very striking and beautiful originally.

I am much indebted to Mr. J. Bilson, F.S.A., of Hull, for pointing out many of the interesting particulars of Birkin, and the similarity of the work with that in Normandy, where he has travelled and made careful study of the Architecture.

We will now examine the south aisle, which was erected by a lord of the manor (D'Everingham) in the latter part of the fourteenth century.

This addition entirely destroyed the symmetry of the Norman plan as well as the dominant idea of those builders—that of keeping the nave dark and the east end light. Two pointed arches, chamfered only, with hexagonal pillar between, separate this chantry from the nave. The design of tracery in

stained glass in several of the windows with heraldic and other devices.

I am sure you will excuse me for lingering over the description of this remarkable little church, but the place is so full of items of interest and instruction that it is difficult to know what to omit. There is a strong feeling amongst many students that Norman work is much below par; in fact, I have heard advice given that it is not worth while bothering to measure such work. I wish to protest against such advice. I have measured Early English work at York Minster, Skelton, and elsewhere, and have been duly permeated with a sense of the wonderful beauty of that style, but after I had spent twelve Saturday afternoons at Birkin with rule, plumb-bob, T-square, and pencil, and numberless evenings at home making the particulars presentable, I became



NORTH-EAST VIEW OF DARRINGTON CHURCH. R. A. EASDALE.

constructed on the advanced method of being actual groin ribs, and not the early method of being merely radiating ribs on the surface of the semi-dome. The vault of the narrow straight bay in front of the apse is a semi-circular barrel vault.

The whole construction of this apse vault shows no hesitation or bungling in its method. The ribs are in narrow stones throughout (as is usual in all Norman work), and the key in the centre of the transverse rib with the intersection of the two radial ribs is in one stone. The principal lesson taught by the better Norman work, especially in vaulted churches, is the absolutely logical method observed; especially the way in which the supports of arch and vault are designed to suit arch orders and ribs—a shaft to each order and each rib.

The general idea of the planning of Norman churches can be seen at Birkin notwithstanding the large fourteenth century south aisle, which lets in a flood of light. A dark tower-space, nave and chancel poorly lighted, and apse end one flood of light direct on to the altar; it is quite apparent that the dominant idea was to attract attention eastward, and

windows is very characteristic, and, for so small a church, ornate.

Of course, the extension southward necessitates the piercing of chancel wall by squint, and the magnificent Norman south doorway had to be removed and rebuilt. This doorway in itself is worth a pilgrimage to the spot to examine the carving, which in most places is quite fresh.

I was lucky enough to obtain two photos of the church, which represent the building as it was before restoration. Mr. Oldrid Scott in 1883 erected a new porch, and, I am glad to say, showed all the doorway; but it was found that the blundering, unsympathetic former erectors of the porch had destroyed part of these pellets, necessitating the insertion of new stone and modern carving, which has most capably continued the spirit of the old work.

The pulpit is a fair specimen of good Jacobean work with the regulation sounding-board above, and the font, though bearing the same date as that at Kippax, viz., 1628, is thought to be of very much earlier date, indeed, the work belies its date. I must not forget that there are some scraps of very early

possessed with a feeling of intense admiration for those clever architect craftsmen of the twelfth century. One cannot fail to be struck with the conviction that those men did in reality "design with beauty and build with strength." Every detail, every constructional item has its position accentuated by appropriate treatment. All the ornament is characteristically flat; to this, perhaps, we owe its wonderful preservation.

Examine the clever introduction of varieties of the scallop-work in all the caps. Every cap and nearly every neck mould is differently treated, the same remark applying to the pellets and the beak-heads. This spirit seemed also to enter the D'Everingham restorers, for all details in their work are diversified.

I ought to mention that lack of time only prevented me illustrating some of the characteristic corbels under the north eaves, which are a variety of well-known Roman forms, including the effective and simple axed work, and the clever treatment of flat surfaces on various planes. This beautiful and inexpensive mode of decoration is, I think, one of the best things taught us by Norman work.

Two instances occur in the church of the vandalism of the fourteenth century restorations, which prove that they were guilty of conduct such as we are unfortunately so often experiencing nowadays. Like the insertion of the perpendicular tracery in the west window at Selby Abbey, so the placing of the decorated work right in the centre of apse almost upsets one on beholding it for the first time. The destruction of carving on south doorway, mentioned before, is the other instance of that astounding disrespect for good work which is, alas, so slowly dying out.

I think you will all agree that Birkin is a church which well deserves a wider reputation. I know of no book which illustrates its beauties or chronicles its points of interest. But like many other worthy places, it has only to be known and seen to be appreciated, and I trust my feeble exposition of its value will in

south window, and the north-east window of the east end, and the perpendicular main east window—all these of themselves would be sufficient to stamp this wonderful church as almost without rival for its size.

A double black oak sedilia exists in chancel, with hinged carved misereres all complete, as modern specification would put it. The whole church has been recently restored by Sir A. Blomfield.

Ackworth, a village about three miles from Darrington, contains some picturesque stone domestic buildings of the last century. I show a sketch of one doorway. The lych gate to churchyard is modern, but not to be despised by the sketcher on that account.

Womersley Church, three miles south-east from Darrington, has a broach spire worth sketching, and other parts are not unworthy of study, but I have no notes on same, and it

stone on top of shafts of belfry windows (twelfth century work). In the view of the west front, the parapet and roof line appear to be wrong in perspective. That is not the case. There is a distinct fall of these away from the tower, whether due to pressure of the vaulting beneath or to counteract a possible settlement of the large tower, I do not know.

The whole village of Campsall is most picturesque, and would furnish worthy examples for the brush of a Waterhouse, Leader, or Herkomer.

A particularly lovely bit may be seen looking towards the church from the village. The fine elms and other trees are in themselves well worth a visit from these districts, where the proximity of trade seems to spoil everything beautiful in Nature.

If you visit Campsall, do not fail to go to Burghwallis, about one and a half miles south



SOUTH-WEST VIEW OF DARRINGTON CHURCH. E. A. EASDALE.

some measure increase the fame of the grand old place.

We pass Ferrybridge on our way from Birkin to Pontefract, with its little church of lowly pretensions. Somehow Pontefract sounds to a stranger like an old-world place, and I was very disappointed with its Architecture, in fact very little remains of its former glory, thanks to those unscrupulous Commonwealth men.

The old hall, one mass of ruins, is hopelessly in decay, and the old church has been patched up in transepts and crossing for divine worship. Of the once renowned castle, built in 1081 by Ilbert de Laci, and from whence all the churches in the neighbourhood owe their origin, only very few ruins remain. I have mentioned the curious fact that the plan of private chapel resembles that of Birkin. The masonry still extant shows most careful workmanship, the beds and joints being as good as when new.

Three miles south of Pontefract is another wonderful church, Darrington, which I believe was recently visited by our Society. The Norman Tower, with its belfry windows, the Early English south doorway, the decorated

is some years since I visited the place, so memory fails me.

Three miles south of Womersley, and six miles north of Doncaster, we come to Campsall. As the name implies, it was originally a Roman camp, many coins of that date having been found here. This place was also the scene of Robin Hood's famous exploit—the robbery of the Bishop of Hereford. The all-powerful Ilbert de Laci crops up again here, and no doubt he once more was instrumental in putting up this really magnificent Norman doorway and noble tower. The plan of this church is a complete miniature cathedral with nave, chancel, north and south aisles, and north and south transepts. There are evidences of a tower being originally intended at the crossing, but it was placed finally at the west end. An ancient rood-screen exists at the chancel, and at the west end of south aisle is a bay of domical vaulting, over which is placed a room, probably a library.

The happy grouping of the belfry windows and shafts and niches thereto is very striking. A noticeable late occurrence exists (as a survival from pre-conquest work) of the through

of that village. The church here is remarkable for the obliquity of its plan, the herring-bone walling, and the superb oak chancel-screen. It is curious that, whilst all the walling of tower and nave seems of one date, the axis of plan of tower is quite out of line with that of the rest of the church. I had only time to hastily sketch one bay of the screen, but you will gain some idea of its elaborate work from that drawing. The whole screen is about 10ft. 10in. high, and 15ft. long. The groined canopy work and the marvellous running frieze and cresting are well worth measuring.

There is no dearth of worthy buildings in the district to be studied. I know the difficulty of successfully carrying on sketching clubs, the reluctance of beginners to allow their seniors to inspect their first attempts, and many other drawbacks; but surely many must feel, as I do, that they would be able to improve very much if they had the opportunity of working alongside of men of superior attainments in this line, and a good sketching club in connection with this Society would, I think, in that way prove beneficial.

CHURCH ART AND ARCHITECTURE.

THE Church Congress held at Nottingham last week took a wide survey of matters pertaining to the Church. "Art and Architecture in the Service of the Church" was the subject under discussion at one of the evening meetings. The Rev. W. H. Draper, vicar of the Abbey Church, Shrewsbury, read the first paper. He said that, to any one who studied the history of Architecture, nothing was more striking than the way in which, as a matter of fact, it had shared in the mighty influence of the Christian spirit, and received from it certain characteristics which in their turn became fresh witnesses and agents of that spirit's life. The Christian religion counted nothing human as alien from its influence, but had within itself a power of eliciting new beauty and higher service from all kinds of Art natural to man. What were the points and principles to which attention needed most to be drawn? There was need of more personal intercourse and fellowship between the clergy and the artists. Another point that needed attention was the truth that all church buildings belonged to a living church, with its past, its present, and its future. They were not simply sacred relics, they were something more even than precious works of Art; they were the living instruments of praise and salvation. There was also a need that the public mind of churchmen should show more response so such new ideas and hopes as were stirring in the hearts of architects and artists of the present time. But the one supreme need of all was that of the spirit of enlightened sacrifice (the first of Mr Ruskin's "Seven Lamps") in the church at large, but especially among men of wealth. The heart could not but be quickened at the thought of what might be done when some of our great centres of commerce awoke to their noble opportunities, when the vast wealth now

WAITING TO BE CONSECRATED

was seen, not as a means of power chiefly, but as a possible means of glorifying God and uplifting man.—Sir William Richmond, in the course of his paper, said that leaving aside the classical period, for 400 years and more, from the eleventh almost to the seventeenth century, it seemed as though in Europe the production of an ugly thing was out of the question. In times of turmoil and bloodshed of the Middle Ages, and up to the culminating events of the Reformation, times of excess in vice, of excess in virtue, when there was little or no mediocrity to the front, Art flourished. The standard of taste was very high, but at the same time eminently spontaneous and fluctuating. Notwithstanding eager struggles for power, political complications, internecine wars, there was all through the life of the Middle Ages and the Renaissance a keen zest for the Arts of Peace as well as of war. Cathedrals, monasteries, and palaces were built, upon whose adornments the keenest intellects and the most crafty artisans expended their creative powers and skill. But the modern spirit, full of commercialism, differed from the spirit of ancient times, so appreciative of beauty. Contentment with the "commonplace"—aye, preference of it—had permeated every class and industry more or less, and had crept into the church, where one would have thought a spirit of "protection" would have been stronger than "free trade." There, as in our public buildings and in our houses, the tradesman was more evident than the artist; the commercial, rather than the creative instinct. In England soon after the Reformation, even as early as the reign of Charles I., her churches were destined to become little more than preaching houses, open on Sundays and holy days for the rhetorical display of big-wigged parsons. There was

NO MORE ART FOR THE CHURCHES.

Art in a church was like a red rag to a bull. It was a dull period, artificial in the extreme, a period in which it was impossible that any form of imaginative or decorative Art, especially of a religious character, should flourish. The father of modern romance, the real author of the Gothic revival, the most imaginative tender-hearted gentleman, Sir Walter Scott, by his poems first and then by his novels,

created a new romance. To him they owed the revival, or rather the beginning, of interest in romance. It bore fruit in the noble literature of this century, in the revival of interest in Gothic Architecture; and, directly and indirectly, Scott exercised influence upon the graphic Arts. In painting that most interesting revival, the Pre-Raphaelite, was an offshoot of Scott's genius. How was it that the most renowned painters of our time had been so rarely employed in the service of the church, while there has been so much opportunity presented in that direction? The Gothic revival naturally led architects towards antiquarian research. Hence there had arisen a clear definition of the styles of various epochs. To accommodate these it had been sought to permit no decoration in glass, sculpture, or wall-painting which did not belong to the style chosen—thirteenth, fourteenth, fifteenth, or of whatever century, Gothic or Renaissance.

sible, endured more wrongs and obliterations than even the cathedral churches. England shared with Russia, and with Russia only, the discredit and the misfortune of possessing no central power whatever to control the caprice or to instruct the possibly historical and artistic ignorance of dean and chapter or of the humbler rector.—The next paper, on "The Clergy and Artists' Association," was by Mr. Reginald Hallward, who said that this Association, which was opened by the Bishop of Stepney in May of last year, sought to establish the means through which those desirous of information in regard to the best work which was being done by individual artists might be helped in various ways towards obtaining it. The aim was to bring the clergy into closer relationship with the artist, to draw the artist into closer relationship with the church, and to strengthen and build up the service of Art to religion by directing employment into



CAMPSALL CHURCH, NEAR DONCASTER. R. A. EASDALE.

Surely it was not "style," but "styles," that were wanted; the expression of something that an artist had to say after his own fancy in accordance with such traditions as he had accepted. They would never get Art worthy of their religion until they cared for it and realised its great importance. They would never get it if they treated it as furniture.—Mr. J. C. Cox, F.S.A., said a double demand was made on architectural Art in relation to the church. At the present day their architects were called in to restore the old as well as to supply the new. With regard to the former, he held that irrevocable mischief had been accomplished in the past half-century, blotting out for ever,

IN CATHEDRAL AND PAROCHIAL CHURCHES,

many of the most interesting pages in stone of our ecclesiastical history. Some of our cathedral churches had suffered, too, from the rage for immense organ effects. The average ancient parish church of England had, if pos-

sible, endured more wrongs and obliterations than even the cathedral churches. England shared with Russia, and with Russia only, the discredit and the misfortune of possessing no central power whatever to control the caprice or to instruct the possibly historical and artistic ignorance of dean and chapter or of the humbler rector. The aim was to bring the clergy into closer relationship with the artist, to draw the artist into closer relationship with the church, and to strengthen and build up the service of Art to religion by directing employment into the hands of the most gifted. He had long thought that an order or community of artists on a definitely religious basis, endowed with funds to send out young artists relieved from all direct money responsibility, supported by the community during the work out of its funds, and in return accepting the restraints which a definitely religious basis must impose on their life and conduct, would have enormous advantages. They said, "Go direct to the artist, and we will help you to this." Not half the artists that could do beautiful work in churches were employed in this direction; but then they did not advertise in the church papers, and the public said, "We do not know where to go." This evil, at least, this Association could help to overcome if the clergy and the public would help also.

THE Palais des Champs Elysées, in which during many years the French Salons have been held, has now been entirely demolished.

THE REAL "OLD ENGLAND."

QUAINT LÜBECK.

NO one of late years seems to have suggested that Old England might be a pleasant and interesting country for an Englishman to be acquainted with. After a short sea trip to the Hook of Holland, a railway journey across Westphalia and Hanover to Hamburg takes you through ancestral England, on whose border lie the two famous free Hansa towns of Hamburg and Lübeck. Hamburg is now one of the most modern of towns, the greatest commercial town of Germany, and, since the great fire of fifty years ago, its ancient dignity has to a great extent disappeared. But Lübeck, once the capital of the mighty League of Northern Germany, is to be ranked with Bruges and Nuremberg as one of the towns of the world where the majesty of the past can be fully felt. A mere walk through its streets is an impressive object lesson in what mediæval architects—even though, as here, restricted to the use of brick—could do in the building of walls and gates and towers. Looking up at the mountains of brickwork which rise into vast spires over the two great churches, one feels with our own poet that "They

DREAMT NOT OF A PERISHABLE HOME

who thus could build." Lübeck has its sights, and many and varied they are. There is the wonderful Memling in the cathedral; the mechanical clock, with its quaint procession of Apostles, in the Marien-Kirche; the city gates, the Holstenthor and the Burgthor, massive structures which tell of the day when Lübeck was worth sacking; the Rathhaus, with its splendid staircase and council chamber; the town museum, with its wonders of Gothic Art and its wooden statue of St. George galloping over the dragon with the princess kneeling beside him, a miracle of fifteenth century Art; and, finally, the quaint, high stepped gable houses, some barbarously modernised, but many still left in their original native brick—grand and solid old houses behind whose solemn fronts, in panelled rooms, the old Hansa merchants lived in substantial comfort and quiet dignity. The few English people who go to Lübeck make straight for the Memling and the clock; not many turn out of the Breitestrasse into the doorway of the Shipping Guild, unless, being thirsty, the legend "Münchener Bier" beneath one of the windows catches their eye. Being in, however, they find themselves face to face with the sixteenth century, for

THIS VAST, BEWILDERING HALL,

with its tremendous beams, its panelling, its pictures, its antique models of ships hanging, and a thousand and one other quaint objects, is an untouched interior of the year 1535. As it was when, in the days of our Henry VIII., the ship owners and merchants used to assemble here to discuss the business of the League, so it is now. The interior of the Schifferhaus must be allowed to grow upon the stranger after several visits. It is a place which requires long hours of calm inspection, for when the eye gets weary of contemplating the quaint ships and galleys—every one of them worth its weight in gold to a marine historical painter—it finds relief in the curiosities hanging alongside of them, the statue of the Greenlander in his original Kayak as he was found, "dead in the ice, near Travemünde, in 1668." Hard by is a carved and painted whale swallowing a reluctant Jonah. Revolving lanterns and a splendid old brass chandelier hang from other beams. Above the oak wainscot of the room is

A BEAUTIFULLY CARVED FRIEZE

of pierced panels, and above that curious ancient pictures, stretched upon the wall, with long rhyming inscriptions beneath. Looking lower are seen the bench ends, carved with ships and heraldry, the ships of the League as they were in the days of the beginning of the League in the thirteenth century, the arms of various towns with supporters, men in armour, lightly-clad ladies, and monks. Down at the far end of the room

is a dresser, on which are some curiosities of later days—last century pewters, and flagons, and dishes. Upon the supporting column hang pictures of ships of 1560, one of them named the Eagle—in the original frames in which they were placed on completion for the Guild—accurate portraits of the famous vessels of the Hanseatic League, whose flag, even at that time, when its power was waning, was seen in every northern port. The lower part of the column bears the date 1535, and it and its fellows are as sound and as strong as ever, good heart of oak such as the ships of the League were built of.

THE SIR GILBERT SCOTT
COLLECTION OF ARCHITECTURAL
DRAWINGS.

PROFESSOR BANISTER FLETCHER had a very pleasing announcement to make at the prize distribution at King's College on Thursday. We give the Professor's report:—Since the opening of last Session I have to announce a very valuable gift to the Architectural School of this College. By means of correspondence between Mr. Banister F. Fletcher and Mr. W. S. Weatherley, F.R.I.B.A.—a pupil of the late Sir Gilbert Scott—the whole of the original diagrams and drawings prepared by the late Sir Gilbert Scott, R.A., and his pupils, and numbering some 400 drawings, have been presented to the College, to be under the care of the Professor of Architecture. The drawings were originally prepared as illustrations for Sir Gilbert Scott's world-famed lectures at the Royal Academy, and I need hardly say that their value is exceedingly great. In the collection are many original drawings by Sir Gilbert Scott himself, and by his pupils and others, including George Edmund Street, R.A., J. G. Jackson, R.A., W. S. Weatherley, &c., &c. To show you the extraordinary value which Sir Gilbert placed upon these lecture diagrams, I quote the following from his life:—"If they were not good diagrams it was not for want of pains, for I did all in my power to render them so, and am vain enough to believe that they contain

MUCH THAT IS ORIGINAL

and meritorious. They were most elaborately illustrated by bold chalk sketches and drawings; on these I, my sons, pupils, and assistants worked most assiduously. On one occasion I actually went into France on a special sketching tour in December to get materials for my lecture. A nobler set of illustrations was probably never seen at any lectures. They numbered on one occasion upwards of seventy, and far more than covered an entire side of the great room at the Academy. There were many of them from sketches made expressly for the occasion, some were sketches obtained from others. Very many were enlarged

FROM MY OLDER SKETCH BOOKS,

and some were taken from published works; indeed, every source was laid under contribution to make my lectures thoroughly explanatory in every way." The donation has been made by his son, Mr. John Oldrid Scott, F.S.A., and the thanks of the College are heartily due to him for the gift; besides, it will be an appropriate memorial of one of the most eminent of English architects of all times. Many of the drawings are hung round the room, but, of course, there is not space for a tithe of them. The only thing we have to ask the Council to do by the terms of the donation is to provide suitable accommodation, and a certain outlay on repairs to the drawings. With the collection already belonging to myself, and which has been collected and gathered in from all parts of Europe, and from private and individual sources, it forms a collection which I do not hesitate to say has no rival, or anything approaching a rival, in the whole of the civilised world. I cannot leave the subject without again referring to the debt of gratitude on behalf of architectural education we owe to Mr. John Oldrid Scott and to Mr. Weatherley for acting so kindly on behalf of the college. I should also say that Mr.

Weatherley has given the whole of the original drawings which he made for the illustration of Scott's well-known lectures on Architecture, which are in published form, and well known to all architectural students.

PAVING OF LONDON STREETS.

SOME particulars as to the paving of the metropolis are given in a contemporary. The modern history of the London pavement commences with an Act passed in 1533 for paving the road between the Strand Cross and Charing Cross—that is from opposite the modern Somerset House to Charing Cross. The distance between the Strand Cross and Temple Bar had been previously paved, the "great comfort" of which was set forth in the Act. The expense of the paving was to be borne by the individual proprietors, each being bound to pave in front of his own house under a penalty of sixpence (equivalent to about six shillings of our present currency) for each square yard of pavement not laid down or not afterwards kept in repair. In the next year another Act was passed, setting forth that Holborn, the great road to the west and north-west parts of England, was formerly well paved, but had become "noyous" and dangerous, and directing a pavement to be made from Holborn Bridge to Holborn Bars by the inhabitants, as in the former Act; but the penalty for not maintaining the pavement in repair was extended to all London and its suburbs, particularly to Southwark, and lessees were empowered in paying their rents to deduct money expended in paving. In 1541 an Act was passed for paving the street from Aldgate to Whitechapel Church, from Holborn Bars towards St. Giles (as far as there were contiguous habitations on both sides of the way), Chancery Lane, Fetter Lane, Shoe Lane, and Gray's Inn Lane, "in the same manner as from the

STRAND BRIDGE TO CHARING CROSS

is now paved." In the City the Mayor and Aldermen are empowered generally to enforce the Act, and are themselves made liable to a fine of £5 if they neglect to do so. The next Act was in 1545, and it directs the paving of Whitecross Street, Chiswell Street, Golden Lane, Grub Street (Milton Street), Goswell Street, Long Lane, St. John Street (Smithfield), Water Lane (Fleet Street), Wych Street, and the Strand from Temple Bar to Strand Bridge, Fosse Lane (near Strand Bridge), the Street Without Bishopsgate Street, and Petty France (now York Street, Westminster). In this Act the penalty is increased to twelve pence per square yard, and magistrates are liable to the penalty of £5 for neglecting to enforce the Act. The next important Act on the subject of paving bears date 1603 (3 James I.). This was for the paving of the road from St. Giles down Drury Lane to the Strand, and also towards Wych Street. Smithfield was paved in 1613, and about the same time broad free-stones began to be laid down for the accommodation of foot passengers. After the Great Fire in 1666, all proprietors in the City were ordered to lay down flagged pavements 6ft. wide each before his own house, and the rest of the street to be paved "causey" fashion, or raised in the middle. The modern system of rating the inhabitants, instead of compelling them to do the work themselves "each before his own house," commenced with the Act 13-14 Charles II. (1661-62) for the Repairs of the Pavement and Regulation of the Streets of the Metropolis, which set forth that they had been for some years past miry, foul, and noisome. The Commissioners appointed by this Act are directed to pave St. James's Street, Pall Mall, the Haymarket, and part of Piccadilly to Ayr Street, for doing which they are empowered to charge on the inhabitants each for the frontage of his dwelling 16d. per square yard of pavement; and the repair of all pavements generally is laid on the inhabitants in the same manner, subjecting them to a penalty of 20s. per rod (5½ yards) until the defect complained of shall be remedied.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

October 6th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

The rapidly growing popularity of St. Albans as a residential suburb, and consequently the great demand for building sites, is exemplified in the fact that a site of nearly four acres, which was only opened up as recently as March last, has all been disposed of within the short space of six months. Not only has the land been sold, but there are already about a dozen houses in the course of completion, the majority of which are being carried out under the direction of Mr. Percival C. Blow, architect, of St. Albans. The estate is known as "Gombards Estate," and, with the exception of about seven plots, has all been sold by private treaty, none fetching less than about £2 10s. a plot.

SPECIALISTS in Athenian archaeology have been devoting much attention of late to the vestiges of the ancient temple of Athene on the Acropolis, the predecessor of the Parthenon, which stood on the site occupied by the ruins of the Erechtheion. Dr. Dörpfeldt has always maintained that the old temple was never completely destroyed, and fragments have been discovered which it is believed belonged to the statuary in the pediment of the building, including the figure of Athene, minus the arms, and three torsos of giants. It is hoped that enough of the group will be recovered to indicate its nature and leading features. It was this old temple that contained the miraculous statue of the goddess, the olive tree she caused to spring from the earth, and the spring which was called forth by a stroke of the trident of Poseidon. It was the shrine of the sacred hill and the goal of the Panathenaic procession.

THAT thickly populated quarter of modern Athens known as Anaphiotika has come into the hands of the Greek Archaeological Society. As the newly acquired blocks stand in the immediate vicinity of the Acropolis some specially good finds are expected, and excavations are to be proceeded with at once. Although the British School at Athens is doing good work, it is unfortunate that we have to depend upon the learned societies and journals of Germany for the greater part of our information concerning the work done by the archaeologists. An official account of the work done in the neighbourhood of the Acropolis has been published in modern Greek by the Athenian Ephor of Antiquities. Cannot the British school send us an English version? The excavations are said to throw considerable light upon several disputed points in the Ion of Euripides and the Lysistrata of Aristophanes.

THE Church of St. Martin's-in-the-Fields is almost as well known as the Nelson Column, the National Gallery, or Trafalgar Square itself. It has the proud distinction of being the Royal Parish Church, her Majesty the Queen, the Prince of Wales, and the Duke of York being all dutifully inscribed on the roll of parishioners, together with many less illustrious names. After having been closed for

three months, the spacious old church was re-opened last week. Sir Arthur Blomfield, R.A., shortly after the Jubilee, had taken in charge its interior decoration to excellent purpose, endeavouring, by the introduction of light and colour, to brighten the harsh and stiff old Georgian walls.

VERY soon, it is to be feared, it will be possible to number on one's fingers the links in the City of London that connect the past and the present. We have it on the authority of a correspondent that no less memorable a house than the tavern at Pie Corner is coming under the hand of the improver, and is about to be demolished to give place to a more modern structure. There it was that the Great Fire ceased to burn, and the present house, which, by the way, is Corporation property, was erected on the site. It is an interesting old house, containing several relics of bygone times. For instance, relegated to the coal cellar is a huge beam (to which is attached an iron bracket) which was formerly part of the house standing there when the fire raged about the spot. Fastened to the cellar wall, also, is a curious old-fashioned coffee-mill, long too rusty for use. Mention may further be made of the existence on the topmost floor of a door in one of the walls. This is regarded by the inmates of the house with something akin to awe, for it not only leads "somewhere," but is covered on the outside with large strips of iron placed crosswise. To the man in the street, however, the most interesting feature of the building is the effigy of a "naked boy," which was placed over the door soon after the fire, and which bears an inscription to the effect that the fire was a judgment on the people for the sin of gluttony. Some little time back the figure was removed, but recently it has been reinstated, plus a thick coat of paint, which entirely obliterates the inscription. A very good suggestion has been made, viz., that if the house comes down, the effigy should be secured for the Guildhall Museum, together with that portion of the beam which is said to be scorched.

THE need for proper art gallery accommodation seems to be generally appreciated in the manufacturing towns. Bradford must now be added to the list of centres of population in which dissatisfaction is felt with the present inadequate arrangements for the exhibition of works of Art. A scheme has been prepared for the erection there of a municipal gallery which would compare favourably with other buildings of the same class in the midland and northern counties. The site on which it is proposed to erect the gallery is the property of the Corporation, and the cost is estimated to amount to about £10,000. If the scheme is accepted by the Corporation, Bradford would enjoy the advantage of possessing an institution on a larger scale than that already existing at Birmingham, and excellently adapted to the requirements of the district.

DICK'S COFFEE-HOUSE—an interesting remnant of old Fleet Street—will soon disappear. There may be doubts whether it is the actual building where, in the last century, Dr. Johnson and his wits, poets, and politicians assembled, for within the last forty years this historic quarter has seen many structural changes. But if the hotel is not the famous original, it is about three centuries old, and stands in the immediate locality. Having an unpretentious exterior, it is entered by a long narrow passage where two persons cannot walk abreast; and the contrast between the noise and bustle of the street and the quietude and repose of the coffee-room is striking. It is a large chamber, with oaken beams on the ceiling, and looks into Hare Court, with its trees and its conduit, once a pump. Hidden on the north by Butterworth's, the law publisher, perhaps the oldest shop in Fleet Street, and on the west by the quaint wooden Elizabethan houses at Middle Temple Gate, formerly known as "the old post-house." Here it is said the business of a law stationer has been carried on, as now, for 200 years. It is apt to be ignored by the passing wayfarers. The door of Dick's has now been finally closed, and the ancient

edifice will speedily be razed to the ground to make way for the wants of an adjoining assurance office.

"ARCH ROCK" is one of the most conspicuous objects in San Francisco Bay. Situated just one mile due west of Fort Alcatraz, it separates the north and south channels of the harbour. Above the water-line the dimensions of the rock are small. Its height above low tide is but 26ft. and its length about the same. An arch about 12ft. in diameter, through which small boats sometimes pass, has been worn through the middle. Below water the rock expands gradually, so that in order to obtain a uniform depth of 30ft. at low tide, as is contemplated by the engineers who have contracted to remove this obstruction to navigation, a bulk over 300ft. in diameter must be removed. The engineer, Mr. Otto Von Geldern, who has been making the preliminary surveys of the rock, has made sectional drawings of it. The rock is soft sandstone, and easily disintegrated by explosives. The plan recommended by the engineer is to drill holes to the required depth and charge with dynamite. Drills can be operated either from boats or from stationary platforms resting upon the face of the rock, and adjustable for all depths, and easily operated at all stages of the tide or conditions of the weather. The softness of the rock will permit rapid progress when the work is begun. Not more than two seasons will be required for preparation, and one blast, it is calculated, will utterly obliterate the rock as it now stands. The engineer calculates that 40,000 cubic yards of rock must be removed in order to attain the required depth of 30ft. at low tide. The plan pursued in blowing up the rocks at Hell Gate, New York Harbour, was considered, but the engineer believes that the work can be quite as effectively performed and much more cheaply by drilling from the exterior.

It is now announced that among the probable features of the Paris Exhibition of 1900 will be an exact reproduction on a large scale of one of the most characteristic buildings in Moscow, the church of Vassili-Blagennoi. This edifice, which is better known to western tourists as Saint Basil's Church, was erected towards the middle of the sixteenth century by order of Ivan the Terrible in commemoration of the conquest of Astrakhan. Its chief originality is the eleven towers by which it is surmounted, the towers themselves being capped by metal domes resplendent with gold and silver burnishing and painted in the most brilliant colours. Legend has it that when the church was completed Ivan the Terrible had the architect called into his presence and asked him whether he was capable of producing another building equally beautiful. On his replying that he was, the Tsar at once had the unfortunate man's eyes put out.

OWING to the great inconvenience caused to the public by the frequent opening up of the roads in London for various purposes, the Strand District Board of Works has issued a circular to all Metropolitan vestries and district boards, suggesting joint action, with a view to reducing the inconvenience. It is pointed out that at present the gas and water companies have the power of opening up nearly all the London streets at any time, subject only to their afterwards making good the roadway. The board suggested that the authorities it has circularised should join in asking the London County Council to insert a clause in its next General Powers Bills making it obligatory on London gas and water companies to give due notice to the parish authorities before opening up any road, and giving the parish authorities the power of vetoing such opening.

THE Glasgow Art Galleries, of which the foundation-stone was laid the other day by the Duke of York, promise to be the finest in the kingdom. The rooms, for the most part, range between 90ft. and 100ft. in length; and, while some are as much as 65ft. wide, the majority have a width of 35ft. The exterior is severely classic in treatment, but with a

free use of Renaissance details. The buildings will cover an area of nearly two acres. Glasgow has, singularly enough, shown this year, by the high honours she has taken in the National Competition of Schools of Art, how a Fine Art gallery will be appreciated; for she heads the list, beating Birmingham, which is usually *facilis princeps*, by a single prize and equalling her in the gold medals.

STATUES by the score have been inaugurated during the past two months in France. A single paper names the following as having been unveiled in a fortnight:—Two to Carnot, at Limoges and Annecy; at Valence two, one the work of the Duchesse d'Uzès; at Péronne one to Marie Fouré, a legendary heroine akin to Jeanne d'Arc; at Châteauneuf one to the Provençal poet Anselme Mathieu; at Orange one to the architect Caristie; and at Grenoble one commemorative of 1788.

THE demolition of a section of the Hanover Buildings, Tooley Street, immediately facing the southern end of the Tower Bridge, is in progress, and is the first indication of the commencement of the new roadway which is to be made by the London County Council extending from the Tower Bridge to the Old Kent Road. The local authorities are being approached by the County Council with a view to obtaining their consent to the new thoroughfare being lit with the electric light and to apportioning the charges to the several parishes.

A CURIOUS complication appears to have arisen in regard to the proposed removal of coffins and human remains from vaults beneath the old Church of St. Mildred, Bread Street, City. During the repairs, which have been in progress since the autumn of last year, some human remains were discovered, and the City medical officer (Dr. Saunders) reported the matter to the Home Office authorities, who eventually caused an Order in Council to be issued requiring the churchwardens to remove the remains forthwith to Woking Cemetery. But the medical officer reappeared on the scene, and on sanitary grounds it was decided to postpone operations over the summer until October. Meanwhile the Bishop of London's advisers pronounced the Order in Council to be invalid, as the space under the church had long ceased to be used as a "burial place." Between the Home Office and the Diocesan Chancellor the churchwardens were in a dilemma, but have now decided to apply forthwith for a faculty so that they may be safeguarded by the possession of duplicate warrants.

THE annual exhibition of drawings and paintings by students of St. Martin's School of Art in Castle Street, Long Acre, is now arranged. As on former occasions there are some good designs, notably those of Miss Thomassin, who adapts floral forms to artistic patterns for tiles, borders, &c.; Mr. R. Crooke, also successful in floral and figure work; Mr. A. Vaughan, with skillfully drawn ornamental device; and Mr. C. Twohey, whose panel and ceiling designs are in the manner of old French decoration. Exemplary patience in the study of early work, of different countries and periods, is shown in some museum studies by Mr. Watkins, who evidently understands beauty of line and colour. The chalk work from life comprises some strong heads with character about them, by Mr. F. Anderson; another is by Mr. C. Westlake; and one of a girl, manipulated with much refinement, is by Mr. John E. Allen, who for the past several years has acted as headmaster of the school. A prominent feature amongst the subjects of instruction is designing for carriage building.

A QUITE pathetic appeal was made to the Devonport Town Council by the deputation which waited upon it in opposition to the proposed site for the Great Western goods station. It would gratify the æsthetic taste of a Ruskin to find in a utilitarian community like Devonport a body of men anxious to save from the hand of the spoiler the "beautiful neighbourhood" in which they live, and advancing as a reason for opposing a railway scheme the

argument that that neighbourhood is "one of the few places left to lend a charm to the suburbs" of the town. With practically the whole of the foreshore devoted to the dock-yard and its appurtenances, and a large area of the town covered with barracks, Devonport can never hope to be particularly attractive as a place of residence. There is thus all the more reason for preserving a suburb like Stoke, which is not without its charm.

TIMBER is cheap to-day. The circumstance appears worthy of record that many of the great beams that were put up to strengthen verandahs and other structures along the route of the Jubilee procession still remain in position, standing, stripped of their decorations, as gaunt reminders of the event of a lifetime. The reason of this apparent waste of good wood is that the labour required to remove it costs more than the value of the material, and the householders who had the shorings put up, having forgotten to contract for their taking down, find themselves inheritors of unsightly and unprofitable oddments and impediments of which they cannot rid themselves except at considerable expense.

THE question of rebuilding and removing Christ's Hospital—known to most Londoners more familiarly as the "Blue Coat School"—has been so long about that the laying of the foundation-stone of the new buildings at Horsham this autumn will come as a surprise to many. Defeated in their endeavours to keep their old "alma mater" in town, some of the old Blues have conceived the idea of rebuilding the now historical hall on the Sussex site. This hall, the scene of so many commemorations and school incidents, is the imposing Gothic building seen from Newgate Street. Although, however, it looks so ancient, it really only dates from some sixty years ago.

MR. RALPH THOMAS, of Clifford's Inn, writes protesting against the proposed granite parapet to the river front of Battersea Park. "Anyone who wishes to see how utterly all the ever-varying interest of the river can be blocked out by a granite parapet has only," he says, "to take a seat on the Thames Embankment, when he has a fine view of stone pavement, granite wall, and tops of houses on the opposite side. Now let the spectator go to the Tower Gardens, Greenwich or Blackwall piers, or the Royal Victoria Gardens at Woolwich, and see the difference. Instead of dull dreariness of walls, you have life, animation, and beauty of the river, with its numerous craft. Imagine the Parade at Brighton with a nice granite parapet!"

RAPID progress is being made with the demolition of the iron buildings known as the "Brompton Boilers," and in a few weeks nothing will remain of this, the oldest portion of the South Kensington Museum. "The Boilers," which were erected more than forty years ago, were first opened to the public in June, 1857. No one will regret the destruction of these unsightly buildings, whose removal will be followed, it is hoped, by the erection of the long-promised new frontage to the museum.

AN interesting discovery has been made on Barningham Moor, the property of Sir F. A. Milbank, Bart. One of the highest points of the moor is called "How Tallon." Quite on the summit of the hill is a mound, about 60 yards in circumference and 6ft. to 7ft. high. It was decided to open this mound, and accordingly a trench was made on the south-east side, and before a yard of earth had been removed human bones and fragments of a skull came to light. Proceeding gradually towards the centre, the loose character of the soil gave indications that a further find was in store, and near the top of the mound a stone cist was discovered. This had contained a human body, but owing to pressure from above, from a wall which was built over the mound, the remains were lying outside the cist. It was impossible to be certain whether the body was in a sitting or lying posture, but most probably the former. The skull was much broken but

the jaw and teeth gave evidence of an old man. Among the bones were four flint arrowheads and a flint scraper. Two of the arrowheads were very remarkable specimens, one of the barbed variety, and the other leaf-shaped. The edges were exquisitely serrated and most delicately made. A small pottery urn, much broken, was also found with the body, and this had a finely-worked pattern on it of small triangular form.

MR. R. M. BUTLER, architect, Dublin, has written protesting against "the extent to which it is the fashionable custom to call in English or foreign architects to design works in Ireland to the detriment of their professional brethren here." He proceeds: "I give a list of a few important works in progress which will serve to show how grave a slight is placed upon the Profession in Ireland by building owners, undoubtedly to their own loss. A stranger cannot have the same facility in dealing with the building problems of this country as would one who has spent his professional career in becoming acquainted with the possibilities of its building materials, and who is thoroughly familiar with the social conditions of his own country. Needless to say, a man coming over to design a solitary building is out of touch with it; and to expect from him any active sympathy with a struggling native industry would be absurd. The following are some of the works I refer to:—Messrs. Power and Son's Distillery; Mr. Carøe, architect to the Ecclesiastical Commissioners, London. Mr. John Jameson, residence at Howth; architect, Mr. Darbyshire, Manchester. New Theatre Royal; Mr. Frank Matcham, London. Mr. James Talbot Power, works at Leopardstown; architect, Mr. W. D. Carøe. Lord Carysfort, new church at Arklow (cost over £25,000); Sir A. Blomfield, London. Lord Iveagh, new buildings at Farnleigh, Castleknock, and St. Stephen's Green; architect, Mr. William Young, London. New Hotel, Sackville Street; English architect. Kilkenny Cathedral; Sir A. Blomfield. I need scarcely say that in the remarks I venture to offer I have no desire to include such English architects as have honoured us by taking up their residence in Ireland. The practice I refer to is equally a slight on them."

THE most picturesque portions of the Old Bell Inn, of Holborn, have endured since 1521. Their doom has now been pronounced, and an auctioneer was last week engaged in selling the furniture and effects. Memories of Dickens, Thackeray, John Leech, Mark Lemon, and others are associated with this ancient hostelry. No doubt in the old days stage plays were enacted in the yard, and there is a tradition (which is picturesque, even though it may not carry the weight of Mr. Furnivall's authority) that this was the scene of one of Shakespeare's own performances. Mr. William Black's readers will not need to be reminded that Queen Titania, Bonny Bell, and Count Von Rosen lunched there before the phaeton started on its strange adventures. The Uhlan, it will be remembered, spoke of "the old-fashioned air of homeliness and comfort noticeable in the inn, of the ancient portraits and the quaint fireplace, and the small busts placed about." Mr. Black's description of the "frail and dilapidated galleries" is not applicable to their present condition. But the first story floors are anything but level. Creepers still hang from the galleries.

IN the report of the vestry meeting of the parishioners of St. Mildred, Bread Street, and St. Margaret Moses, a remark was made by one of the speakers to the effect that in a few years time in all probability the site of the parish church will be sold. Such a suggestion requires to be promptly nipped in the bud, and the City Church Preservation Society and all lovers of Wren's Architecture will, it is to be hoped, take immediate action in order that when the attack is made it may be met and successfully combated. It is admitted that the church merely encumbers the ground from an ecclesiastical point of view, but for this position of affairs to be regarded as any argu-

ment in favour of demolition must not be countenanced for a single moment. The connecting links between the past and the present are disappearing all too quickly by the hand of the improver. All the more necessary, therefore, is it for the lovers of the past to unite in resisting any attempt at vandalism such as that suggested by the proposal to remove one of Wren's grandest churches.

MARKS HALL, near Kelvedon, is to be offered for sale at the London Auction Mart on October 14th. The manor of Marks Hall was held at the Conquest by Nigel under the Montforts, then by the de Meres or Merksalls (whence the modern name). This powerful family held the manor for 500 years; then ceded it to the Coles, who passed it to the Deraughs, from whom in 1605 it was purchased by the Honywoods, the present owners. While the new possessors in the early days of James I. found it necessary to rebuild the ancient structure, they preserved such of the more recent additions as were substantial, the Tudor gateway and parts adjacent. The main body of the manor-house belongs naturally to that hybrid period which partakes both of the Elizabethan and Jacobean types. Thus even in the entrance hall we have the high oak wainscot, old oak chimney-piece, and open fireplace, with dog irons; yet we have a comparatively wide oak staircase, to which the corridor screen of the hall serves as staircase screen. The internal arrangements underwent considerable modification at the commencement of the Georgian epoch of architecture. The situation of the house on high ground renders it probable that the most ancient existing portions do not antedate the early Tudor period. The mansion, which is approached by a carriage drive winding through the undulating and well-timbered park, contains, in addition to the fine old entrance hall, a pleasant breakfast-room, a well proportioned, hexagonal-shaped dining-room, a handsome drawing-room and library, together with fourteen principal bed and dressing-rooms and eight secondary sleeping apartments, a lantern-lit billiard-room, and an ample set of domestic offices.

FEW artists of great distinction have had their personality less frequently paraded in public than Mr. Holman Hunt, whose picture, "Gloria in Excelsis," was last week exhibited at Nottingham in connection with the Church Congress. Mr. Hunt, who lives at Draycott Lodge, Fulham, but is rarely seen in town now, was admitted a student of the Royal Academy in his seventeenth year, and two years later sent his first picture to the exhibition of that institution. In conjunction with the late Sir John Millais and Dante Gabriel Rossetti, some forty-six years ago, he introduced what is now universally known as the pre-Raphaelite style of treatment, one of the most powerful literary champions of which was John Ruskin. Mr. Holman Hunt was born in London seventy years ago, but in what month of 1827 no one appears to know.

THE last of the great suspension bridges across the Niagara gorge is about to be taken down, and workmen are now busy preparing for the erection of a second steel arch to span the chasm, where for many years the suspension type of bridges held undisputed sway. The final structure to be removed is the bridge close to the State reservation and falls. It has the longest span of any of the Niagara bridges, and the arch that is to replace it will be one of the most notable structures of its class in the world. With the construction of this second arch, this style of bridge will share with the cantilever the honour and credit of transporting all travel across the gorge, while it will also define a most wonderful advancement in bridge building. The proposed arch especially referred to will be the fourth bridge to be erected on the site. The abutments for the arch have been built for over a year. They are four in number and stand close to the water's edge on either side of the river. Each abutment will support one leg of the bridge. In preparing for their construction the accumulated rock and loose dirt of the banks were

excavated by hydraulic means until a solid rock foundation was reached. On this foundation of rock a concrete foundation was built. From cliff to cliff at the point where the bridge will stand the distance is 1268ft., and the span proper of the arch will be about 840ft. In width it will be a little over 49ft., the present structure being but 17½ft. It will be of the single deck pattern, and about 23ft. of the centre will be devoted to trolley tracks, while carriage-ways will be on each side, beyond which will be elevated walks for pedestrians. Located, as this great arch will be, close to one of the natural wonders of the world, it is destined, no doubt, to attract much attention, not only while in building, but in its finished state.

ALTHOUGH the restoration of the old Priory Church of St. Bartholomew the Great is practically completed, further portions of the original building are still being found. During the last fortnight some 20ft. of the exterior wall of the north side of the Lady Chapel have been uncovered. This wall will now be left permanently exposed. The building, and especially the Lady Chapel, which was opened last May, continues to attract large numbers of visitors. During October the whole church, including the crypt, will be thrown open during the afternoons of October 9th and 16th, and the points of interest will be explained by one of the honorary secretaries of the restoration fund.

THE committee responsible for the carrying out of the work of erecting suitable memorials in the Isle of Wight to the late Prince Henry of Battenberg has received an important communication from the Society for the Protection of Ancient Buildings, which will, in all probability, retard the work the committee has in hand. The memorials decided upon were two. The first was the conversion of the ancient gatehouse and Portcullis Chamber of Carisbrooke Castle into a museum for the reception of articles of interest connected with the Castle and Isle of Wight. The other memorial was an addition to Carisbrooke Church. Sir Charles Seely, Bart., formerly M.P. for West Nottingham, offered the sum of £1000 towards the second memorial, providing that at Carisbrooke Church a chancel should be built on the site of the one formerly said to have existed at the church. The memorial at Carisbrooke Castle is almost completed, and has given great satisfaction to those who are responsible for the work. With regard to the memorial at Carisbrooke Church the Committee of the Society for the Protection of Ancient Buildings has interposed, and the secretary, Mr. Thackeray Turner, has addressed an important letter to the secretary of the Battenberg Memorial Committee on the subject. The committee expresses the hope that the rumour as to the destruction of the ancient chancel arch is unfounded, as in its opinion it would be an unjustifiable act of vandalism. Carisbrooke Church, it points out, is so well known, and is of so much interest to many people beyond the area of the Isle of Wight, that any interference with its ancient character and appearance could only be looked upon as a calamity, and therefore the committee earnestly begged that the Memorial Committee would not give its consent to the destruction of the chancel arch, which was necessarily a record and an interesting feature of the church. The Society had no other object in view than as its title indicated, namely, the preservation of ancient buildings. The memorial has not been so popular with the island residents as that at Carisbrooke Castle. The action of the Society mentioned has caused considerable comment in the district, and it is quite probable that the committee will be prevailed upon to adopt some other scheme.

A HOUSE, No. 92, Great Titchfield Street, W., partially collapsed a few days ago. Building operations were in progress on an adjoining space, recently occupied by two houses which had been demolished. When the bricklayers had just left work for breakfast, what is described as a rumbling noise was heard, followed by a dense cloud of dust. When the dust had partially cleared off it was found

that the whole of the side wall abutting on the space where the building is in progress had collapsed, practically wrecking No. 92.

THE distribution of prizes to the students of the architecture and building construction and woodcarving classes was held on Thursday at King's College. The Rev. Dr. Robertson, principal of the College, occupied the chair, and was supported by, amongst others, Sir Henry Harben, and the Master, Clerk, and Warden of the Carpenters' Company. Professor Banister Fletcher reported that the competition for the two free scholarships, given by the Carpenters' Company, took place at the College on September 27. There were twelve candidates, of whom ten sat for the examination, the successful candidates being Mr. A. C. Remnant (126 marks) and Mr. C. J. T. Dadd (123 marks). Sir Henry Harben presented the prizes to the successful students, and afterwards delivered a short address to the students present. The Rev. Dr. Robertson proposed a vote of thanks to Sir Henry Harben, saying that a great deal of the success which the classes had achieved was due to the munificent and thoughtful support received from the Carpenters' Company. Mr. Joseph Henry Gibbins, Master of the Carpenters' Company, seconded the vote, which was carried unanimously. Architectural drawings, prepared by the students, were afterwards exhibited. We hope to illustrate the work in an early issue.

At the Ecclesiastical Art Exhibition at Nottingham, which was held in a building adjoining the Guildhall, a very interesting collection of artistic church relics was brought together. Many pieces of Communion plate are shown, of which, perhaps, the most interesting are the chalice and paten from Bacton, in Herefordshire. The chalice is undoubtedly made by the same hand as the celebrated Nettlecombe chalice, which is supposed to be the oldest piece of English hall-marked plate. As the Bacton plate is unmarked, it is probably of older manufacture than the Nettlecombe chalice, and experts have fixed the date at about 1470. One peculiarity is the name, John Caputt, or Capull (probably the donor), engraved or stamped on the foot, contrary to mediaeval custom. The chalice with cover from Findern, in Derbyshire, is unique in design, and, bearing the hall-mark of 1564-5, is believed to be the oldest chalice in Derbyshire. The quaint hammered silver cup is supported on three elephants, and the cover bears another in lieu of the usual knob. In the cover is inserted a Danish coin of 1642. It is thought by some that this cup was used at one time in a monastery, but on the other hand it is suggested that it might have been once in the possession of either a member or an official of the Danish Order of the Elephant. An excellent collection of monumental brass rubbings is shown: the one that claims most attention is Sir John d'Abernon's, being the oldest brass in England. A melancholy exhibit is a case consisting of old carved work and portion of an alabaster tomb and relics of painted glass from St. Mary's Church, and in the same case can be seen specimens of Nottingham pottery from the fourteenth to the nineteenth centuries.

THE new drainage system of Naples has already given excellent results. The outfall at Cumæ is an interesting piece of engineering. The sewer is covered to within a few yards of the sea, and runs under an embankment having the appearance of the Barking sewer, though on a smaller scale. At the outfall a break-water has been built, and a solid dome of very strong masonry. The point selected is immediately to the north of the acropolis of Cumæ, where the marshy plain which contains the lakes of Licola and Patria is situated. This plain is so malarious that it is wholly uninhabited for many miles, and, consequently, the emanations from the sewer do no injury, for no one bathes there, and the place is practically a desert. The pumping stations which are to raise the sewage of the Chiaia district and of the lower quarters of the port are not yet at work, but this will probably be altered before long.

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CHURCHYARD, ST. JEAN DU DOÏGT. C. A. NICHOLSON. FROM A WATER-COLOUR DRAWING.



ST. JEAN DU DOÏGT. C. A. NICHOLSON. FROM A WATER-COLOUR DRAWING.

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Surveying and Sanitary SUPPLEMENT.

OCTOBER 6TH, 1897.

MODERN SANITATION.

By H. A. SAUL.

(Continued from page 83.)

II.

IN the last article the construction and method of laying the drains were considered, and it is now proposed to deal with the appurtenances of the same in detail, bearing in mind that the class of work is in accordance with the nature of the house, and not of the first order, though thoroughly

direction of its course should be constructed so as to be easily got at.

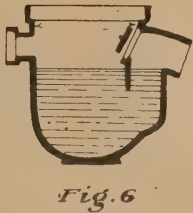
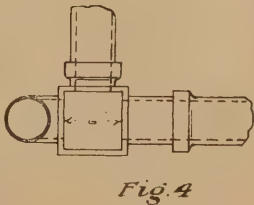
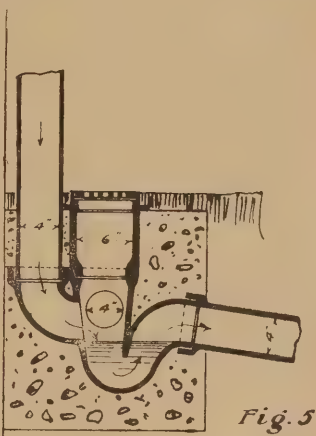
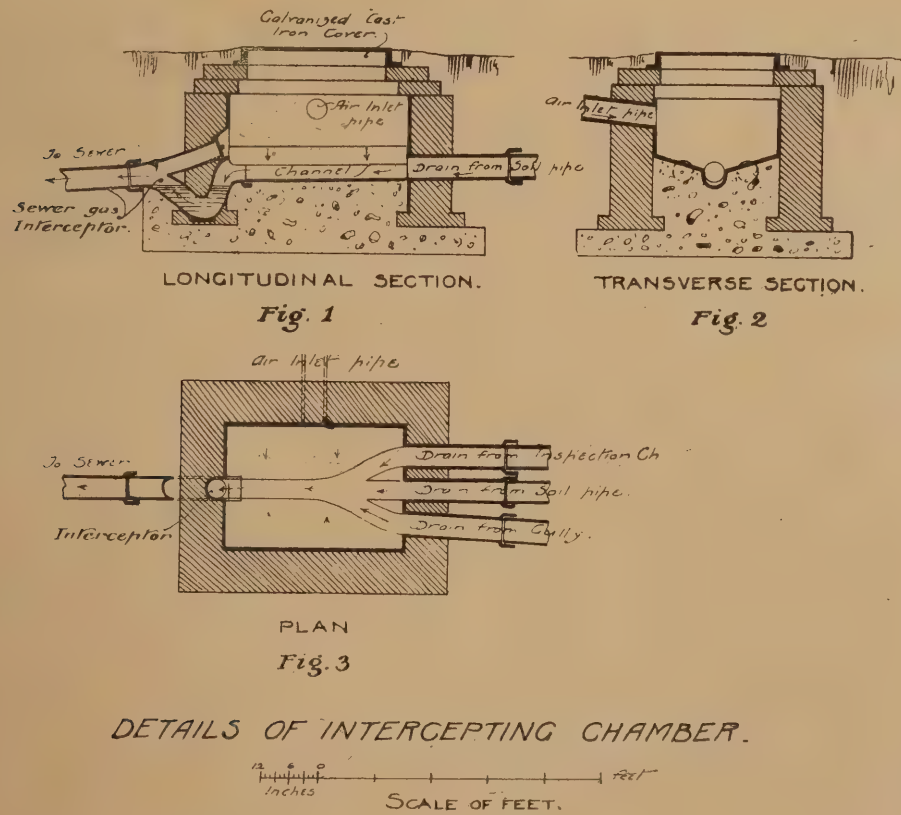
In the plan accompanying the last article all the changes of direction take place within the inspection chambers, with the exception of a rain-water drain in front of the house—the reason for which will be explained later.

Figures 1, 2, and 3 are a plan and two sections in detail of the inspection chamber at the lower end of the drain, that containing the trap or interceptor for disconnecting the drain from the sewer, and generally known as the *disconnecting chamber*, to distinguish it from the other chambers or manholes of a system. The walls are built of hard bricks

towards the channels, and floated with cement trowled smooth; the sides of the chamber are also coated with cement.

The size of the top is reduced by gathering over the brickwork until the opening is of the dimensions of the cover, which is of galvanised cast-iron.

The interceptor has an arm, which enables



adapted in every way for the purpose for which it is intended.

Although the bye-laws obtaining in many of the districts in and around London make no mention of inspection chambers, a system of drainage can in nowise be considered perfect without adequate means for getting at every portion thereof other than by digging.

If a drain becomes stopped up, the obstructing matter is nearly always found in a bend; it is therefore necessary that every bend formed by a drain having to alter the

set in cement mortar, and rest upon a bed of concrete. The incoming pipes stop short at the inner face of the wall, and the drains continue into the chamber in the form of open channels approaching one another and culminating in a single channel towards the interceptor. The channels are formed with Portland cement, and are semi-circular in section, with a diameter equal to that of the pipe.

The bottom of the chamber is formed of concrete laid with falls (shown by arrows)

the short length of drain between the chamber and the sewer to be cleaned if necessary, and the arm is capped with a plug which fits into a socket at its upper part, and is made with a Stanford joint. This joint consists of a bituminous substance which is applied to the socket and the edge of the plug, and, owing to the elastic nature of the material and the slight adhesion caused by the contact of the surfaces, is a very complete one, and effectually prevents any sewer gas entering the drain. At the upper part of one side of the chamber is

shown the pipe which conveys fresh air for the ventilation of the drain.

The inspection chamber shown upon plan No. 1, at the upper end of the drain, would be constructed in every way similarly to the one described, except, of course, that it would contain neither a trap nor an inlet for fresh air.

The greatest source of danger, viz., the access of sewer gas into the drains, having been prevented, the matter of next importance is to guard against the possibility of any smell from the drains themselves entering the house. This is effected by means of traps fixed at the ends of all branch drains, except those that act as ventilators; these traps all work upon the same principle, viz., the water seal, but are combined in various ways, as, for instance, with a w.c. apparatus, or with a gully at the foot of a rain-water pipe, or with a grease-containing gully to receive the waste from a sink, &c. Figs. 4 and 5 are a section and a plan of the gully at the foot of the rain-water pipe at the front of the house. As this pipe receives the bath waste in addition to the rain-water, it is made to enter the gully by a back inlet, to avoid the unsightliness caused by the splashing of soapy water and the collection of filth which invariably results when the down pipe discharges its contents by means of a shoe above the gully grating. To this gully is also connected the short length of drain which conveys the water from the bay window, and which is made to enter through a side inlet, and in order that the drain may be laid with sufficient fall, the gully has been deepened by means of a piece known as a *gully top*, upon which rests the gully grating of galvanised cast iron, to prevent leaves and other matter from entering the drain. It should be noted that the gully is well embedded in concrete, which keeps it rigidly in position, thus preventing any failure of the joints. The gullies throughout are constructed of glazed stoneware, similar to the drain pipes, and all the joints are made with cement. All the rain-water pipes are shown upon the plan connected to the gullies by back inlets. A method commonly adopted is for the pipe to terminate a few inches above the gully, and be fitted with a *shoe*, which causes the water to be discharged clear of the wall, and well above the centre of the grating; this answers very well as long as the grating is not allowed to become choked, but the system adopted has the great advantage of a direct connection between down pipe and gully, and a clear way for the water in the event of the grating becoming stopped up.

Fig. 6 is a section of the gully placed to receive the waste from the scullery sink, and known as a *grease trap*; it is made larger and deeper than the gullies already described, and the bottom is slightly sunk to hold sand or other heavy settlement, while the grease rises to the top of the water, and becomes collected upon the surface. The large size of the gully possesses the double advantage of a considerable surface of water upon which the grease may collect, and of being easily cleaned out. The sink waste enters by a back inlet, and a rain-water pipe by a side ditto, and an inspection cap, with a Stanford joint, is provided above the trap to enable the drain to be cleaned in the event of a stoppage.

Traps to be thoroughly efficient must possess the following points:—
Freedom from sharp angles, where filth would be likely to accumulate.

An easy bend which will allow the waste to flow smoothly and unchecked.

A water seal—i.e., the dip of the upper part of the pipe within the water of not less than from 1½ in. to 2 in.

Every precaution has now been taken to prevent the access of sewer gas to the drains, and of smells to the house; and all that remains to be considered in connection with the drains themselves is the subject of their ventilation.

For the proper and efficient ventilation of any system of house drainage, it is necessary that at least two *untrapped* openings be provided to the drains, arranged according to either of the following methods, as the circumstances of the case may render advisable:

First, one opening to be at or near the surface of the ground adjoining such opening, communicating with the drains by means of a suitable pipe, shaft, or disconnecting chamber, and situated as near as practicable to the sewer intercepting trap, and on that side of the trap which is the nearer to the building. The second to be obtained by carrying up from a point in the drains, as far as practicable from the above-mentioned opening, a pipe or shaft vertically to such a height and in such a manner as effectually to prevent any foul air from entering the building. In no case should this pipe be of a less height than 10ft.

The second method is simply a reverse of the first, and not so generally adopted, as it is usually possible to place the pipes in the position above described, which method is the more rational on account of the *outlet* ventilating pipe being at the upper part of the drains, the point where any gas or smell would naturally accumulate.

It frequently happens that the soil pipe, i.e., the vertical pipe connected with one or more upstairs water-closets or slop-sinks, occurs in such a position as to form the ventilating pipe at or near the upper part of the drains, for, as will be explained later, a soil pipe must always be carried up well above the roof. In the case under consideration this pipe, although acting as a ventilator, ventilates only a very short length of drain, and so another pipe has been provided at the back of the house connected to the upper part of the drain which conveys the water from the gully adjoining.

(To be continued.)

REFUSE AND ELECTRICITY.

THERE is more than one place in the country where the dust and ashbin refuse of the district is burnt and chastened to clinkers in the furnace, and there is more than one vestry which produces its own electric light. But Shoreditch is alone in the attempt to use the dust as fuel, to apply that fuel to the driving of electric motors, and so to turn the very refuse of the dustbin and the ashpit into sweetness and light. As you turn down one murky street of Hoxton to the Shoreditch Dust Destroying Works, you come upon a string of dust-carts piled up with all the miscellaneous refuse which the miscellaneous life of Shoreditch affords; as you come up another you encounter a tall post of painted iron with an arc light on top, and two incandescent shade lamps branching on either side; and the two, the dust-carts and the electric lights, are as the cause and the effect. Between them is a long chain of ingenious contrivance and scientific adaptation. The dust-carts drive into the Shoreditch works in Coronet Street over a weighing machine, where the refuse from Shoreditch kitchens and Shoreditch manufactories is weighed as carefully as if it were precious metal coming into the Mint. Then the cart goes on—it will be best to follow an individual cart in order to get a general idea of what is done—until it comes opposite one of two lifts. The lifts have square-shaped funnels on top of them,

FUNNELS ON A LARGE SCALE,

and into one of these funnels, after the pause of a moment or two for reflection, the cart tips its load. A man waiting by one of the lifts rakes the precious burden into its place in the lift-bin, and separates from it any hoops of iron or disused bath rims which the inhabitants of Shoreditch may have seen fit to discard. When this task is finished he shouts the British workman's equivalent for "kindly take note that a bin is coming up above there!" to the dustman upstairs, and the heavy ash-bin electrically moves upwards. We, as spectators, follow its direction if not its course, by making our way up a couple of uncompromisingly steep ladders to a floor above. Along this big chamber runs a double line of rails, and along the railway lines run a couple of trucks. But these trucks are the same things as the bins, one of which we have just seen loaded and have followed upstairs. When the platform of the lift containing this truck-bin reaches the level of the rails, it

stops automatically. The attendant dustman, or topman as he is called, on the bin's arrival, adjusts it, and fits to its two little copper horns, which we just notice for the first time, two electric antennae, the effect of which is to draw the bin along just as if it were a piece of soft iron pulled by a magnet. These

ELECTRIC CONTACTS

gently lead the truck with its refuse until it comes to an open grave upon the tipping platform. There are a good many of these graves placed at appropriate intervals along the trucks' railway lines, and they greedily swallow many trucks of refuse during the day. The truck tilts and tips sideways into their yawning mouths. But the refuse does not go straight into the fire. It falls into other bins which move on railway lines at right angles to those on the tipping platform, and each of these lower lines of rails runs over the top of a furnace. The lower rail bins, too, are divided into five compartments, for a binfull of refuse at a time is more than a steady-going fire should be called upon to swallow. One-fifth of a bin is all that a furnace wants at a time, and when the proper time comes the bin slides to its proper position over the sliding roof of the furnace; the sliding roof slips back, detaching the false bottom of the lower bin as it does so, and one-fifth of the bin's contents falls into the back of the fire. The back of the fire is the proper place for it, so that it may be dried and swept by the furnace blast before it comes into contact with the flame. So far we have followed the refuse to the furnace. Here it becomes converted into clinker, and in this form serves the State in an honourable capacity on country roads. But in the course of conversion into clinker it gives out heat which generates steam power, to be used immediately or stored in a huge thermal storage cylinder, and the steam power works dynamos, and the dynamos give light and electric power. First of all, let us consider the furnaces. There are a dozen of these, eight of which are working, and they will eat up more than 20,000 tons of refuse a year. Their average at present is set down as sixty-five tons a day; but there are many days when this is exceeded. The ordinary ashbin refuse is of a very varied description—straw hats and gingerbeer bottles go down to destruction with tea-trays and bedding which has seen better days. The furnaces consume everything. Not a pound of coal is used to burn the rubbish. But a ton of rubbish does not seclude the same amount of heat as a ton of coal, and some day, as the electric wants of Shoreditch become enlarged, the amount of heat afforded by the consumption of the refuse will not be sufficient to supply it, and coal will have to supplement the refuse. At present on Sundays the supply of refuse has to be carefully husbanded, and when the scavengers have cleared up Shoreditch for Sunday, and the destroying works have been swept of every speck of dust and disinfected, there is not quite enough refuse to keep the fires going, and so some tons of coal have to be used. Nevertheless, the destroyers present a striking example of a self-supporting organisation, and the instances of this self-supporting activity extend from the general to the particular. For instance, part of the electric force generated is used

TO WORK ELECTRIC FANS.

The furnaces are kept going under the forced draught set up by these fans. The hot air and any noxious gases that may collect in the upper portion of the destructor house are drawn down air ducts to the fans and there forced through the fires and away up the chimney. The upper portion of the destructor is thus supplied with fresh air every few minutes, while any foul gas arising from refuse is at once drawn off and sent through the fires as a forced draught. There are six boilers, of water-tube construction, and they are supplied with duplicate fittings throughout to guard against breakdown. In order that the heat generated at all hours may not be wasted, the steam raised in the boilers may be passed into a thermal storage cylinder, where it is conserved at a temperature such that when night approaches, and all the resources of the estab-

ishment are called upon to supply electric light, it is full of water at the temperature, and steam at the pressure, required by the engines. It is almost impossible to convey in figures the money value of this valuable and ingenious organisation; but it may be mentioned that in the speech with which Lord Kelvin accompanied the formal opening of the works he stated that whereas the parish used to pay 3s. 2d. a ton to have its rubbish carried away and cast into the sea, it can now treat it here and turn it into light or motive power at a much lower cost.

As people are now preparing to go to the Riviera for the winter, it may be opportune, writes "A Winter Resident on the Riviera," to call attention to the sanitary condition of most of the houses they will find there. Last year before going out I let my house in London. The tenant before taking it had an exhaustive examination by an expert, and it was necessary to show, by a very stringent test, that there was no possibility of the escape of sewage or sewer gas into the house or the adjoining soil. This represents the sanitary standard in England. On arrival at my destination on the Riviera I found a house of an expensive character being built in a very good situation. In the middle of it, in the basement, was a great pit. Inquiring the object of this I was told it was the "fosse," or cesspool for the whole house. The pipes that led into it from the closets were very large and of rough earthenware, with very imperfect joints, and they were all inside the house. I was told that this was quite a common construction. A friend of mine who had an examination made of a house he proposed to take was told it was in the best sanitary condition, so much so indeed that "not a drop of sewage could escape outside the house." Examining a house myself later on with a view to hiring it for the year, I found the cesspool partly outside and partly under the house, the soil pipes coming down inside the house of the very roughest construction, and no pretence of a syphon trap; an inch or so of water in the pan was supposed to provide all necessary security against the admission of sewer gas. The English doctor informed me that 99 houses out of 100 were no better. The same people who insist on excessively stringent tests before taking a house in London go gaily into such a house as I have described on the Riviera. Perhaps they would not do so if they knew the facts which I have set forth above.

Surveying and Sanitary Notes.

MR. R. M. PANKHURST vigorously denounces the Manchester culvert scheme in a letter to the Manchester Guardian. "Surely the citizens will stir themselves," he writes, "to stop the waste of a sum estimated at £258,000, but actually much larger, on the proposed culvert scheme—a scheme at once of panic and of despair. The culvert is wholly unnecessary. By chemical precipitation alone a good effluent can be now sent into the Ship Canal. This effluent can be put on a constant course of improvement, and the standard of purity be constantly raised. Stop any untreated sewage passing into the canal, and put in the effluent obtained by an approved system of chemical precipitation, and no more is needed. The culvert is demonstrably unnecessary. Notice at what point it is to come in. The Corporation is to go to all the trouble and cost of adopting chemical precipitation. It is to go to all the trouble and cost of sludge disposal. Then, and then only, is the culvert to be brought into service. For what? Merely to send the effluent, after 'chemical treatment and precipitation,' miles and miles away by the culvert. That effluent can, by chemical precipitation alone, be made good enough to go at once into the canal. It is charged by some that the effluent from chemical precipitation alone on passing into the canal, stagnant as it is at the point of discharge, will set up secondary decomposition. Now there is no evidence of this. Indeed, all the evidence is the other way. How can anyone say how this effluent will behave in the canal, as long as there goes into the canal untreated sewage? All experience proves that the effluent arising from chemical precipitation turned into the open canal is not liable to anything that can be called secondary decomposition."

THE Rivers Committee of the Warrington Corporation has presented a resolution to the Town Council that the town clerk and borough surveyor be instructed to report upon the Manchester sewage scheme, and that they be authorised to take such steps as they may consider necessary to protect the interests of the Corporation.—Councillor Bennett said that he would like to send forth an uncompromising opposition to the

scheme. A paper had described the scheme as an impudent one, and he did not consider that that was one whit too strong. The scheme was practically the same as the one which last year was withdrawn owing to the strong opposition raised against it. On that occasion it was amended, by which it was intended to put the sewage into the river at Woolston Weir, instead of at Randell's Sluices. That scheme had aroused very great opposition even with the ratepayers of Manchester, and had been defeated at a ratepayers' meeting there. They had now fallen back on their original scheme of sending their filthy effluent into the river at Randell's Sluices. They would also further interfere with the already deficient water supply in the river.—The resolution was carried.

THE recommendations of the sub-committee appointed some time ago by the Sanitary Committee of the Leeds Corporation to consider the subject of reorganising the ashpit and street cleansing department of the city came before a meeting of the main body recently. With very slight modifications, the recommendations were adopted. If approved by the City Council, they will involve the practical reorganisation of this department of the Corporation work, and it is believed that if carried into effect they will place the department upon such a footing that it will be one of the most efficient in the United Kingdom. The main items in the recommendations of the sub-committee, who seem to have gone most exhaustively into the matter, are that the Council be asked to appoint Mr. George Darley as Chief Superintendent of the two departments of ashpit and street cleansing, which are to be amalgamated, at a salary of £350 per annum. Another proposal is to appoint an assistant superintendent, at a salary of 50s. per week, and that the Council should advertise for a man to fill that position. For the purpose of the cleansing work the sub-committee recommends that the city shall be divided into sixteen districts coterminous with the present ward boundaries, that a foreman should be appointed for each ward, to supervise and be responsible for the work of emptying ashpits, cleansing streets, clearing out gullies, &c., and for the removal of water and snow from the streets. Under these men sub-foremen are to be appointed to perform special duties. Then the sub-committee recommends that the duties of the foremen at present employed by the department shall be rearranged.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Oct. 8	Hull—Re-building Mills	...	Wellsted and Easton, Prince's Dock-chambers, Hull.
8	Portland—Dwellings	...	Webster and Co., Fortune's-well, Portland.
8	Weston-super-Mare—Cottages	...	S. J. Wilde, Boulevard-chambers, Weston-super-Mare.
9	Blaenavon, Mon.—Class-room	...	Lansdowne and Griggs, Architects, Newport, Mon.
9	Mullingar, Ireland—Asylum Additions	...	H. Williams, Secretary, Customs House, Dublin.
9	Elgin—Semi-detached Cottages	...	G. Sutherland, 51, High-street, Elgin.
9	Sheffield—Store Premises, &c.	...	Hall and Fenton, 10, Paradise-square, Sheffield.
9	Sike, near Thirsk, York—County Bridge	...	W. Stead, Northallerton.
9	Keswick—Re-laying Bowling Green	...	J. W. Gill, Oddfellows' Arms, Keswick.
11	Porth, Wales—School Alterations	...	J. Rees, Hillside Cottage, Pentre.
11	Glasgow—Two Goods Sheds	...	J. Deas, 16, Robertson-street, Glasgow.
12	North Woolwich—Building for Stores and Offices	...	Engineer's Department, Spring-gardens, S.W.
12	Aberlour, Scotland—Cottage Hospital	...	Stewart and M'Isaac, Solicitors, Elgin.
12	Halifax—Drapery Warehouse, &c.	...	Jackson and Fox, 22, George-street, Halifax.
12	Halifax—Goods Office	...	Engineer, Hunt's Bank, Manchester.
12	Barking—Baths and Ventilation Columns (2 Contracts)	Urban District Council	Council's Surveyor, Public Offices, Barking.
12	Bromley—Fire Station and Stables	Urban District Council	The Surveyor, Council Offices, Bromley.
13	Enfield—Hospital	Urban District Council	Young and Brown, 7, Southampton-st., Bloomsbury-sq., W.C.
13	Haverstock Hill, N.W.—Porter's Lodge at Hospital	Metropolitan Asylums Board	T. D. Mann, Clerk, Norfolk House, Norfolk-st., Strand, W.C.
13	Athy, Ireland—Water Closets, &c.	Guardians	—Hurley, Engineer, Workhouse, Athy.
13	London, S.W.—Pavilion, &c.	Metropolitan Asylums Board	Board's Offices, Norfolk House, Norfolk-st., Strand, W.C.
13	Greenwich—Yorkshire Stone	Board of Works	141, Greenwich-road, London, S.E.
14	Wibsey, Yorks.—Store and Six Houses	Bradford Provident Industrial Soc., Ltd.	Rycroft & Firth, Bank Buildings, Manchester-rd., Bradford.
14	London—Workhouse Alterations	St. Saviour's Union	G. D. Stevenson, 13 and 14, King-street, Cheapside, E.C.
15	Bletchingley—Workhouse Alterations	Godstone Union	T. Eliff, Caterham, Surrey.
15	Redruth—Stone Fencing, &c.	...	H. W. Collins, Architect, Penrhyn-street, Redruth.
16	Buckfastleigh, Devon—Alterations, &c. (Two Contracts)	J. Fleming	Torr Dean Farm, and Bigadon Stables, Buckfastleigh.
21	Belfast—City Hall	Corporation	E. Thomas and Son, 7, Queen Anne's-gate, S.W.
21	Winchfield—Cottage Home	Guardians	Union House, Winchfield.
26	Windsor—Passenger Station, &c.	Great Western Railway Co.	Engineer, Paddington Station, London.
26	Hampstead—Fire Brigade Station, Alterations, &c.	London County Council	Architect's Department, 13, Spring-gardens, S.W.
Nov. 1	Manorhamilton, Ireland—Repairs	...	E. O'N. Clarke, County Surveyor, Carrick-on-Shannon.
No date.	Aylesbury—Three Shops, &c.	H. J. Goodey	W. F. Taylor, Architect, Aylesbury.
	Braemar—Stables, &c.	...	R. G. Foggis, Invercauld Office, Braemar, Scotland.
	Haydon Bridge, near Carlisle—Villas	...	G. Tyack, Tyne View, Haydon Bridge.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date	Hillsborough, Yorks.—Two Houses...	.....	T. Peckett, 19, Wood-road, Hillsborough, Sheffield.
"	Ilkley—Pair of Semi-detached Houses	.....	Isitt, Adkin, and Hill, Prudential-buildings, Bradford.
"	London, S.W.—Alterations, &c.	.....	R. Curwen, 149, Bishopsgate-street Without, London, E.C.
"	Maryport—Plastering	.....	J. W. Fitzsimons, Ellenborough, near Maryport.
"	Ramsgate—Bramley Fall Stone	.....	W. A. McIntosh Valon, Engineer, Ramsgate.
"	Shoreditch, London—Artizans' Dwellings	.....	R. Plumble, 13, Fitzroy-square, W.
"	Leeds—Ice and Cold Storage Premises	.....	W. S. Braithwaite, Architect, South-parade, Leeds.
"	Whitley—Plastering Eight Houses	.....	D. Weightman, Builder, Blythe.
ENGINEERING—			
Oct. 8	Sleaford, Lincs.—Waterworks	Rural District Council	J. Clare, Surveyor, Sleaford.
" 9	Ruthin, Denbigh—Steam Road Roller	County Council	R. B. Adams, District Surveyor, Denbigh.
" 9	Andover—Well, &c.	.....	A. Purkess, Borough Surveyor, Town Hall, Andover.
" 11	Ramsgate—Gasholder	Gas and Water Committee	W. A. M'Intosh Valon, Engineer, Ramsgate.
" 11	Rugby—Lighting	Urban District Council	D. G. Macdonald, Surveyor, Rugby.
" 11	Bromley—Heating Apparatus	School Board	Offices, Hexted-road, Bromley.
" 13	Tyldesley-with-Shakerley—Public Baths Extension	Urban District Council	J. B. Smith, Council Surveyor, Tyldesley-with-Shakerley.
" 13	Bedlington—Road Roller	Urban District Council	Brown, Surveyor, Bedlington.
" 16-27	Birmingham—Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 18	Nice—Steel Bridge over the Paillon	.....	Commercial Department of the Foreign Office.
" 18	Southend-on-Sea—Pumping Machinery	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 20	Belize, British Honduras—Electric Lighting	District Board	A. Simkins, c/o F. Otto, Tower-chambers, Moorgate-st., E.C.
" 20	Glasgow—Electrical Equipment of Tramways	Corporation	J. Young, 88, Renfield-street, Glasgow.
" 20	Llyn Fawr, Wales—Reservoir, &c.	Rhondda Urban District Council	T. Bees, C.E., Corn Exchange-chambers, Newport, Mon.
" 23	Penrith—Bridge	Rural District Council	C. N. Arnison, Clerk, Penrith.
Nov. 5	Hull—Electrical Equipment of Tramways	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 30	Singapore—Street Lighting	Municipal Commissioners	C. C. Lindsay, 167, St. Vincent-street, Glasgow.
IRON AND STEEL—			
Oct. 11	Hemel Hempstead—Cast-iron Pipes	Rural District Council	W. H. Radford, Angel-row, Nottingham.
" 11	Manchester—Miscellaneous Stores	Lancs. & Yorks. Railway Co.	Stores Department, Osborne-street, Manchester.
" 12	Kidderminster—Cast-iron Staircases	Guardians	J. T. Meredith, Bank-buildings, Kidderminster.
" 13	West Ham—Two Iron Staircases	Guardians	Union Office, Union-road, Leytonstone, E.
PAINTING AND PLUMBING—			
Oct. 9	Cardiff—Painting, &c.	Guardians	A. J. Harris, Queen's-chambers, Cardiff.
" 11	Ballinasloe, Ireland—Plumbing, Gasfitting, &c.	Governors	J. Young, Clerk, District Asylum, Ballinasloe.
No date	Derby—Painting Twenty-four Houses	.....	101, Normanton-road, Derby.
ROADS—			
Oct. 8	Great Yarmouth—Road Works	Urban Sanitary Authority	J. W. Cockrill, Borough Surveyor, Town Hall, Gt. Yarmouth.
" 11	Beckenham—Road Works	Urban District Council	J. A. Angell, Council Offices, Beckenham.
" 11	Crewe—Street Works	Town Council	G. E. Shore, Borough Surveyor, Earl-street, Crewe.
" 11	Selby—Leading Ashes	Rural District Council	E. Townend, 1, Abbey-place, Selby.
" 12	Brownhills, Staffs.—Road Works	Urban District Council	J. H. Shaw, Surveyor, Public Buildings, Brownhills.
" 12	Luton—Road Forming	Town Council	Borough Surveyor, Town Hall, Luton.
" 12	Willenden—Road Works	District Council	O. C. Robson, Dyne-road, Kilburn, N.W.
" 12	Lewisham—Road Works	Board of Works	Surveyor, Town Hall, Lewisham, S.E.
" 13	Bedlington, Northumberland—Materials	Urban District Council	— Brown, Surveyor, Bedlington.
" 13	Kingston-on-Thames—Road Works and Lighting	Corporation	Borough Surveyor, Clattern House, Kingston-on-Thames.
" 13	London, N.—Hardwood Paving	South Hornsey Urban District Council	M. W. Jamieson, Surveyor, Milton-rd., nr. Newington Green.
" 13	Fulham—Making-up and Paving Roads	Vestry	C. Botterill, Town Hall, Walham Green.
" 16	Guildford—Broken Granite	Corporation	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
No date	Mirfield, Yorks.—Road-work	.....	Calder and Hebble Navigation, South Gate, Halifax.
"	Phibsborough, Ireland—Road and Sewer	.....	Dunne and Co., 14, Great Denmark-street, Dublin.
"	St. George, Bristol—Streets, &c.	.....	G. C. Ashmead and Sons, Small-street, Bristol.
"	Bradford—Two Streets	.....	J. Hindle, 24, Bank-street, Bradford.
"	Castle Donington—Road, &c.	New Industries Company	H. German, Ashby-de-la-Zouch.
"	Norwich—Street Works	.....	D. Hall, Swardston.
SANITARY—			
Oct. 9	Berwick-on-Tweed—Sewerage Works	Sanitary Authority	R. Dickinson, Borough Surveyor, Berwick-on-Tweed.
" 11	Glossop—Concentrating Sewers, &c.	Corporation	Lomax and Lomax, Grosvenor-chambers, Manchester.
" 11	Hemel Hempstead—Sewerage Works	Rural District Council	W. H. Radford, Engineer, Angel-row, Nottingham.
" 11	Beckenham—Sewers, &c.	Urban District Council	J. A. Angell, Council Offices, Beckenham.
" 12	Hemsworth, near Wakefield—Drainage, &c. (2 Contracts)	Rural District Council	T. N. Richardson, Surveyor, Hemsworth.
" 13	Brentwood, Essex—Sewers	Brentwood Sewage Extension	Messrs. Jones, 25, Parliament-street, Westminster.
" 13	Ryton-on-Tyne—Sewerage Works	Urban District Council	J. P. Dalton, Engineer, Council's Office, Ryton-on-Tyne.
" 13	Billerica—Sewers, &c.	Rural District Council	Messrs. Jones, 25, Parliament-street, Westminster.
" 14	Walsall—Sewers, &c.	Rural District Council	J. E. Wilcox, 63, Temple-row, Birmingham.
" 15	Royton, Lancs.—Sewers	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
" 16	Portland—Sewers, &c.	Land Syndicate Company	L. Webster and Co., Surveyors, High West-st., Dorchester.
No date	Liverpool—Removal of Refuse	.....	Chief Officer, Fire Salvage Association of Liverpool, Ltd.
"	Woolston, Southampton—Scavenging	Parish Council	W. Fowler, Clerk, Madeira, Woolston.
"	Cockermouth—Sewerage Tiles	.....	Harris and Sons, Limited, Derwent Mills, Cockermouth.
"	Middlesbrough—Cleaning out Beck	.....	Sadler and Co., Chemical Works, Middlesbrough.
TIMBER—			
Oct. 9	Cardiff—Timber for Showyard Buildings	Bath & West & Southern Counties Soc.	T. F. Plowman, 4, Terrace-walk, Bath.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 13	Dorking—Plans for Infirmary	£15, £5	Guardians of Dorking Union.
" 16	Pickering and Kirbymoorside—Gravitation Water Supply Scheme	.....	Rural District Councils.
" 20	Colne—Technical School, Free Library, and Public Hall	£50, £35	Corporation.
" 28	Wolverhampton—Free Library (selected architects)	.....	Town Clerk, Wolverhampton.
" 30	Uxbridge—Schemes for Sewerage and Sewage Disposal	{ £45 (if combined) £15 for Eastcote and £25 for Northwood (if separate schemes)	Rural District Council.
Nov. 13	Byfleet—Village Hall and Club	£26 5s.	Committee.
" 20	Southend-on-Sea—Plans for Church	Not stated	St. Alban's Church Committee.
" 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
" 15	Nottingham—Designs for Laying Out and Planting Cemetery	£100, £50	Corporation.
" 1595.	Nottingham—Designs for Cemetery Buildings	£100, £50	Corporation.
Jan. 1	Newcastle-on-Tyne—Infirmary (Local)	(No First.) £150, £100, £50	Secretary, Building Committee, Newcastle.
Feb. 28	New York—Model Sun Dial in Plaster	500 dol., 250 dol.	Sec. National Sculp. Soc., 215, West 57th-street, New York.
No date.	Bexhill-on-Sea—Designs for Promenade Pier & Pavilion	.....	Bexhill Pier, Park, and Land Company, Limited.
"	Lichfield—Plans, &c., for Nursing Home and Invalids' Kitchen	£10, £5	Lichfield Nursing Home Building Committee.
"	Blackburn—Plans for School	2nd Prize, £5	St. Mary's Catholic New Infant School Committee.
"	Carlisle—Board School	£20, £10	School Board.

Practical Carpentry and Joinery.

(Continued from page 171.)

By GEO. ELLIS.

SHORING.—A shore is a temporary timber construction to support a wall that is falling or in danger of so doing, or one that has to undergo alteration and repair; the first, called retaining shores, are of two kinds—raking and horizontal. The raking act by extending the base of the fabric, and so prevent overturning; the horizontal,

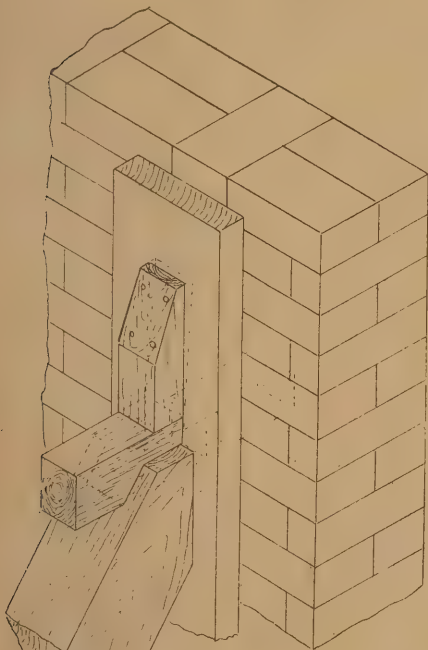


FIG. 25. HEAD OF RAKER.

used mainly between two buildings, from which a central one has been removed, by counteracting the thrust of one building by that of the other. The other form, known as dead shores, are used to support the superstructure when the lower part of a wall is removed, as in the insertion of a shop front in a dwelling house. When a raking shore is put up as a precautionary measure, generally one balk only is used, as shown in Fig. 23; the top end is pitched against a vertical piece of deal (called the wall-plate) at some solid point in the wall—theoretically the centre line of the raker should bisect the angle formed by the vertical and horizontal thrusts, but, as a matter of fact, one has to be governed by circumstances in regard to the position. For instance, the foot can seldom be taken further from the wall than the edge of the pavement, and string courses and ornaments often prevent the needles being placed in the best position. The wall-plate is prevented from sliding by a piece of quartering, 3in. square, passing through it and entering the wall to the depth of half-a-brick. This piece, called the needle, should be 1in. deeper outside the wall-plate, and be shouldered on the top side, and further strengthened by a cleat, sunk and nailed above it (see Fig. 25). It also forms an abutment for the raker, the head of the latter being notched under it, to prevent side-slipping. The foot of the raker rests upon a sole-piece firmly embedded in the ground at an angle of less than 90 degrees with the shore, so that it may tighten as it is driven forward. This should be effected gradually with a crowbar, and not by blows with a maul, the shocks from which are likely to injure the wall. When a wall is in danger of falling through failure of the foundation, its tendency is to turn outwards

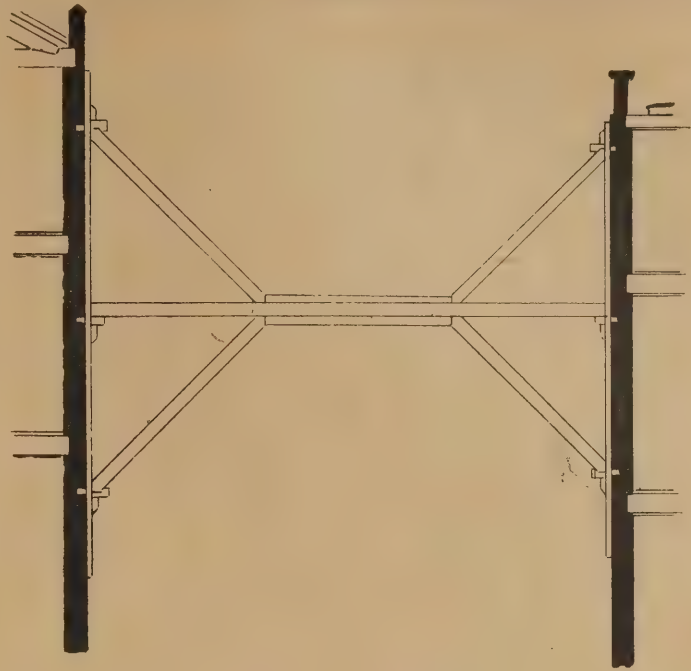


FIG. 22. FLYING SHORE.

on the sound parts as on a hinge (see Fig. 21), and, being secured at the top part by the wall plates, &c., its turning tendency is developed at the middle in a bulge, which if not stopped will continue till the course joints fracture, when the whole fabric will collapse. To prevent this shores must be applied at various points, to be determined by the particular circumstances. Frequently the floors follow the wall; then shores would be placed in a line with each; they should never be placed

over openings or set-backs in the brickwork. Several shores ranged over each other in the manner shown in Fig. 21 are termed a *system*, and several of these systems may be required for a wall. They should not exceed 12ft. apart.

It is not convenient or advisable to use timber much more than 30ft. long for rakers, and when a greater height than this has to be reached, the shore is used in two lengths, as shown in Fig. 21. The lower piece, called the

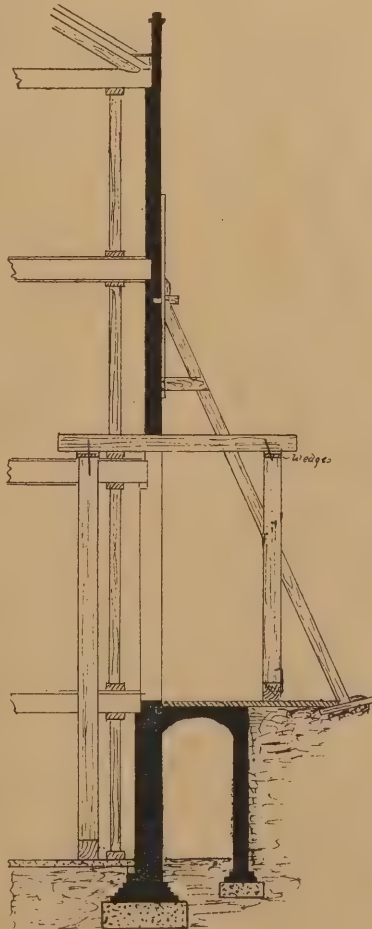


FIG. 23. SECTION.

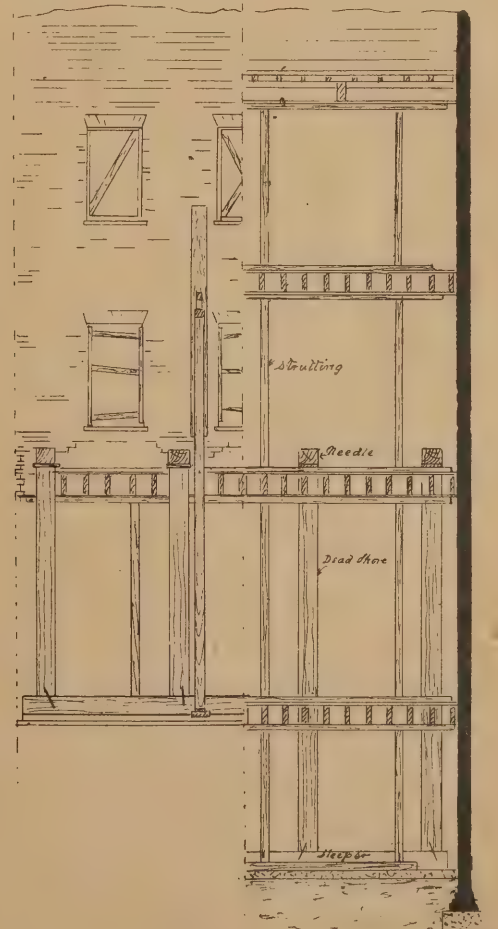


FIG. 24. HALF ELEVATION. HALF LONGITUDINAL SECTION.
DEAD SHORING FOR ALTERATIONS

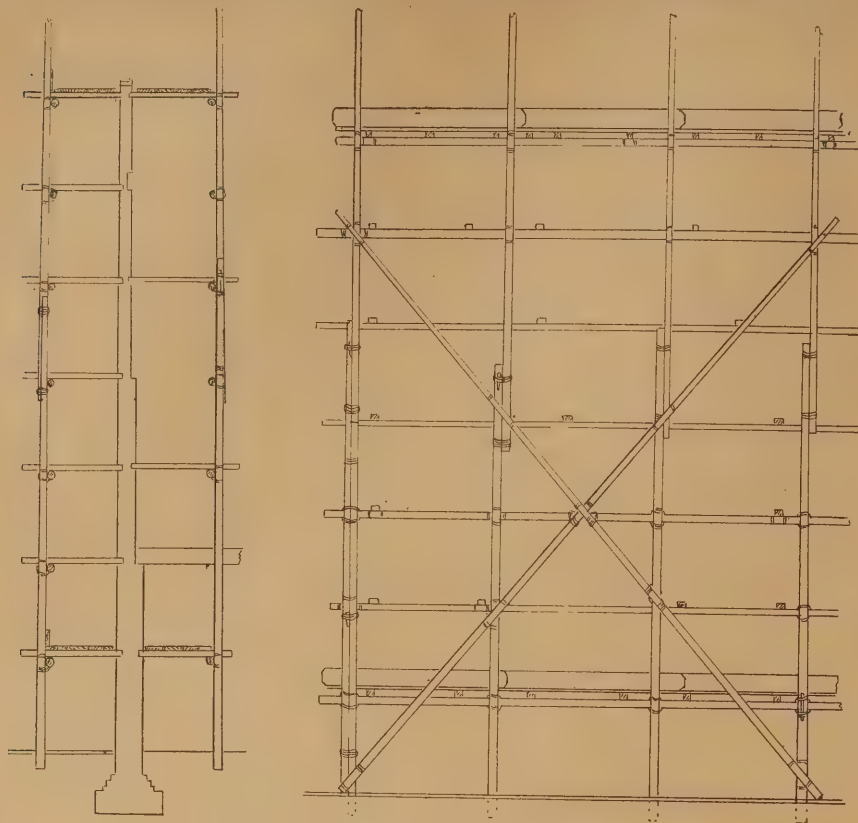


FIG. 26. BRICKLAYER'S SCAFFOLD.

back shore, rests upon the top raker; the upper piece, called the rider, springs from this with a pair of hard-wood folding wedges between the abutment for the purpose of setting it up to the needle. 1in. by 9in. braces should be nailed across the system at each side of the head of the rakers to stiffen them, and several turns of hoop-iron bound around near the bottom; the back shore should also be dogged to the sole piece. It is usual in shoring to use stuff much larger than the strains actually require, as it is more economical in the eventual conversion. The following scantlings are the minimum for the various heights mentioned, for walls 20ft. high: Size of raker, 5in. by 5in.; 30ft., 6in. by 6in.; 40ft., 8in. by 8in.; 50ft. 9in. by 9in.

Horizontal or flying shores consist of a beam fixed tightly between vertical wall plates, secured to opposite walls of the adjacent buildings, the ends resting on needles. Struts set at an angle of 45 degrees spring from needles in each end of the wall plate, and abut against straining pieces nailed to the shore. Wedges are driven at the ends of the straining pieces and the beam to set all up tight. Cleats must be fixed behind the needles, and should be sunk as shown in Fig. 25. The space between these shores should not exceed 15ft., and the height of beam should not be less than three-quarters of the height of the wall. Scantlings: Span 15ft., beam 6in. by 4in., struts 4in. by 4in.; span 30ft., beam 8in. by 8in., struts 8in. by 4in. or 6in. by 6in.

When the lower part of a wall is to be removed, as, for instance, when a dwelling-house is transformed into a shop, it is necessary to insert a breastsummer or a girder to carry the upper part. To do this with safety, raking shores have to be placed against the front, to prevent running out, and the dead weight of the wall taken on to a rectangular arrangement of shoring, shown in Figs. 23 and 24. Holes are cut through the wall, as near the proposed opening as possible, but always above the floor and under a solid piece of brickwork. These holes should be about 6ft. apart, and just large enough to get the needles through. These are either 12in. square balks or 8in. rolled iron joists, and they are supported by upright balks, called dead shores, on each side of the wall. These must be carried on to solid ground, cutting through any floors or cellars that may intervene, and their lower ends rest on sleepers, to distribute the weight.

Folding wedges are inserted at the heads of the shores to set the needles close up to the brickwork; timber dogs are then driven in at each end of the shores to prevent them shifting.

All window openings should be well strutted, and uprights sprung between deals laid on the floors and ceilings throughout the house down to the basement. These deals, of course, run at right angles to the joists. The brickwork can then be cut away, the girder or breastsummer placed in position—the latter should have a 4½in. plate spiked on the inside to carry the floor joists, which are notched out to receive it, a stone template inserted under the ends, and the brickwork built up to it; a bed of cement is laid on top, and the work made good up to the cutting away. At least a week should be allowed to elapse before the shoring is struck, to give time for the new work to set, the rakers being left till the last.

SCAFFOLDS are temporary erections to carry materials and the workmen employed in building operations; they are of several forms, according to the extent or kind of work in which they are employed. The bricklayer's scaffold (Fig. 26) is the commonest and simplest in point of construction. It consists of a number of upright poles of Swedish fir, about 30ft. long and average diameter 4½in., placed about 8ft. apart and 4ft. distance from each side of the wall it is proposed to build. These uprights, called standards, are firmly fixed in the ground, or sometimes in tubs of earth, are crossed by horizontal poles called ledgers about every 5ft. in height, securely fastened with scaffold cords, tightened up with wedges. Upon these ledgers rest one end of the putlogs, the other ends to the depth of half a brick being built in the wall as the work proceeds. The holes so formed are filled in from a ladder after the scaffold is struck. The putlogs are hewn pieces of any tough hard wood about 3in. square and 5ft. long, the scaffold boards are made from 1½in. by 9in. by 10ft. lengths of rough but sound spruce fir with their ends bound with hoop-iron. When the scaffold is of considerable height or length, diagonal poles are

fixed to brace it. Masons' scaffolds, having to carry heavier material, are made more substantially than bricklayers'; they are in two tiers, one about 12in. from the wall, the other 4ft. 6in. away; the inner tier is necessary, partly because it would be impossible to arrange for holes for the putlogs in the right places, and partly because the great weight would injure the "green" wall. The standards

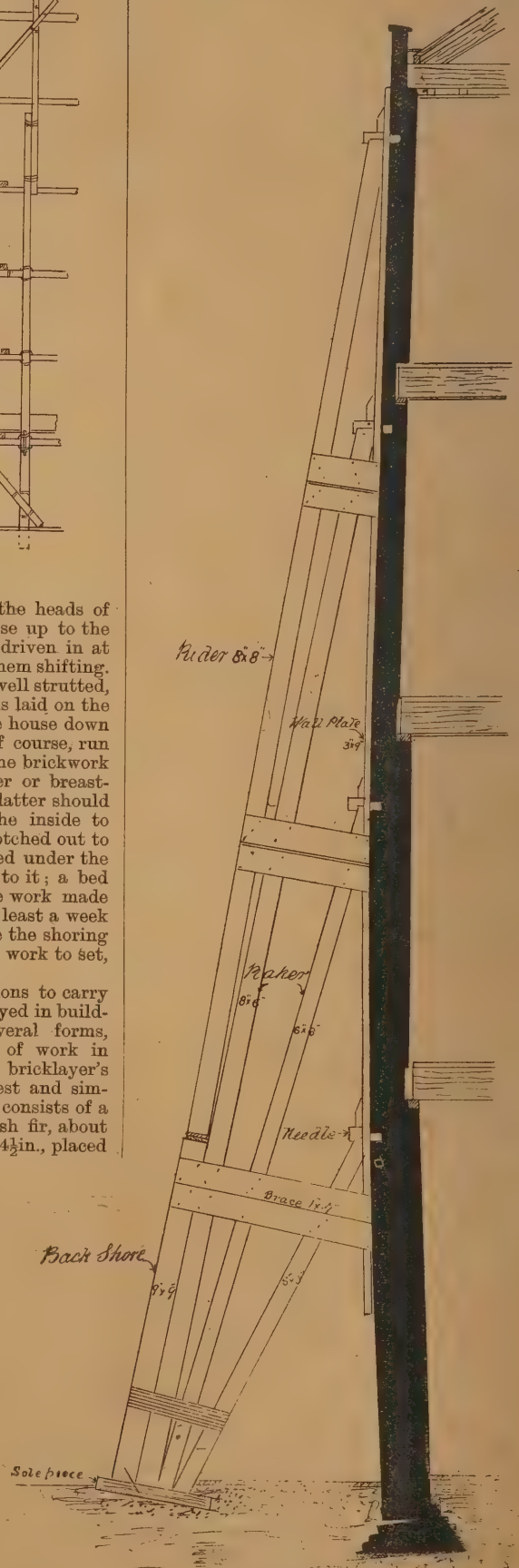


FIG. 21. A SYSTEM OF RAKING SHORES.

are formed of deal or batten stuff bolted together, the ledgers running between and resting on short lengths of batten fixed in the standards. When ordinary scaffold boards are used they are laid in two thicknesses, but frequently 2½ in. deals are used for the staging.

GANTRIES are substantial erections of balk timber used in extensive building operations. There are three varieties—the platform, the traveller, and the tower. The platform gantry (shown in Fig. 27) is used in urban districts, where it is necessary to keep the footway clear, the scaffold proper being erected on the top. It consists of two tiers of standards out of balk timber, 8 in. by 8 in. by 10 ft., resting on sleepers, and supporting a head of similar scantling; between the standards pairs of angle braces are fixed to cleats, and straining blocks; the platform is constructed of 2½ in. battens spiked to the heads. All the parts are dogged together.

THE TRAVELLER gantry is used for lifting, moving, and depositing in position heavy blocks of stone, &c.; it is made both in permanent and temporary form, the former for use in stone merchants' and builders' yards, the latter upon the site of the building. It is constructed in a similar manner to the platform gantry, but more extensively braced, and as the space between the tiers requires to be clear for the passage of the traveller, there are no cross ties except at the ends where transverse heads are firmly bolted. Iron rails are fixed on the longitudinal heads, and upon these runs the carriage of the traveller; this is formed of two trussed girders bolted to two short cross beams mounted on wheels; rails are also fixed on the tops of the girders for the carriage of the winch to run upon. This carriage moves across the space transversely, whilst the traveller carrying it moves longitudinally to the extent of the gantry, thus enabling the load to be deposited anywhere within the boundaries of the framing.

THE TOWER OR DERRICK gantry is a lofty construction of deals bolted together in three thicknesses, forming three square skeleton frames arranged in a triangle in plan. Each frame or tower, about 8 ft. square and 30 ft. from its neighbour, is diagonally braced in 10 ft. heights; the tops are joined by three deep trusses, and covered with a platform of deals. The crane or derrick is mounted directly over the centre of one tower, and its stays are anchored by chains to the bottom of the other two. The bottoms of the towers are filled with bricks or sand, to counter-balance the weight of the crane and its load.

(To be continued.)

A WINDOW has been placed in the church at Theydon Bois, as a memorial of the late Miss Frances Mary Buss, founder of the North London Collegiate School for Girls.

THE life-size marble statue of the late Judge Thomas Hughes, which is to be erected at Rugby by old Rugbeians and others, has been entrusted for execution to Mr. Brock, R.A., who will carry out the work forthwith.

At the Shire Hall, Norwich, the portrait of Mr. C. S. Read, for many years M.P. for Norfolk, was unveiled on Saturday week. It was executed by Mr. J. R. Shannon, R.A., and may be pronounced a good likeness. It is full length, and depicts Mr. Read with an agricultural implement in his hand.

ANOTHER alarming result of subsidence caused by brine-pumping occurred recently in Northwich, Cheshire. A large store-room in Castle Street, belonging to a furniture broker, fell on its back without the slightest warning, and was completely ruined. It is only a few weeks since a church in the neighbourhood was condemned for the same cause.

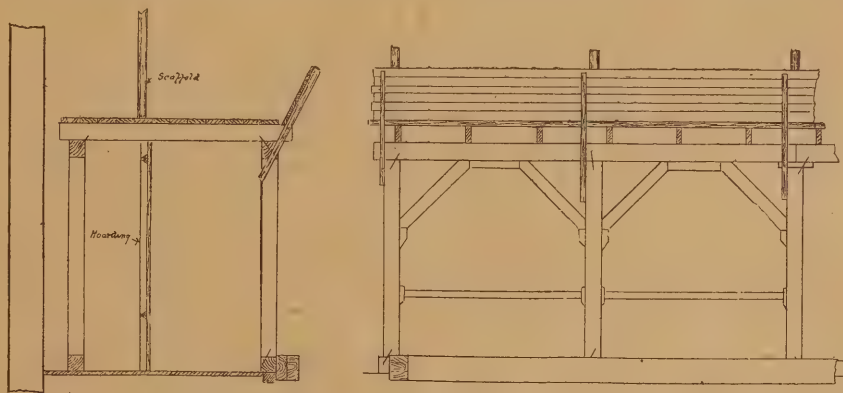
MR. A. G. TEMPLE, F.S.A., director of the Guildhall Art Gallery, is acting as the editor of a new serial publication that is about to be issued under the title, "Sacred Art: The Bible Story Pictured by Eminent Modern Painters." The book will be a panorama of the Bible history, beginning with the Creation, and passing in review the whole story as it has been told by the great modern painters. The pictures will be entirely modern.

Professional Items.

BANGOR.—The organ which has been erected in Bangor Cathedral by Messrs. Hill and Co., London, at a cost of over £2000, and which is said to be the largest in Wales, was opened by Sir W. Parratt, the organist of St. George's Chapel, Windsor.

BIRMINGHAM.—At a meeting of the Public Works Committee of the City Council the question of the sewers was mentioned, and the City Surveyor (Mr. J. Price) reported that the work of inspection was making good progress. None of the districts are finished, but the report from the Edgbaston and Harborne district may be expected first, and this, it is hoped, will be ready for presentation to the Committee at the next meeting, a fortnight hence. Contracts which had been arranged during the recess were entered into for the construction of the sewers in Greenfield Crescent, Edgbaston, and Golden Hillock Road, Small Heath, and also for the construction of new sewers in Washwood Heath Road, Alum Rock Road, and Arden Road, Saltley, thoroughfares in the midst of a rapidly-growing district.

BLACKBURN.—A report issued recently by the Town Clerk of Blackburn showed that the following public works are to be undertaken for that town as necessity arises:—Tramway purchase and conversion to electricity, £100,000; sewerage, £38,000; recreation ground, £12,000;



SECTION. FIG. 27. PLATFORM GANTRY ELEVATION.

markets, £28,000; municipal lodging-house, £17,000; wood paving, £11,000; cemetery extension, £12,000; refuse destructors, £15,000.

BRADFORD.—A new Art Gallery is proposed in conjunction with an extension of the Rawson Place Markets. The scheme is only one of private origin, and therefore may not be accepted, although it has been supported by weighty recommendations from many quarters. The plans provide for an extension of the Meat Market and the erection of fourteen shops in Northgate, while the main entrance to the Free Library would be in Rawson Square. There would be a handsome porch entrance about 40 ft. in width, flanked by a large tower about 125 ft. high. On the Northgate side would be a fine dome, 70 ft. high. The Art Gallery accommodation would be on the first floor above the shops, with a gallery crossing the market, but there would be a large air space in the middle to secure the maintenance of light in the markets. The floor space which would be comprised within the new Art Gallery would be 14,000 square feet, as compared with 5400 square feet at the present premises in Darley Street. The most satisfactory feature claimed for the project is that it would carry out the contemplated extension of the markets and the erection of an Art Gallery, together with the widening of Northgate, at a total cost of about £25,000, whereas the extension of the markets alone, it is estimated, would cost £15,000. Thus an Art Gallery would be obtained at a cost of about £10,000.

CANNING TOWN, E.—Sir Walter Besant has agreed to open the new residence of the Mansfield House University Settlement at Canning Town about the second week in November. The new residence, which has been firmly bedded on concrete foundations, will contain room for about sixteen men, and about £2500 are required to open it free from debt. The Men's Club has also been enlarged by the addition of another house, and will shortly be ready for occupation.

CARDIFF.—At a special meeting of the Town Hall Committee of Cardiff Corporation, the Borough Engineer (Mr. W. Harpur) submitted certain slight alterations suggested by Mr. Waterhouse, R.A., assessor for the Town Hall and Law Court plans, on the answers to the various questions which had been sent out to the competing architects; but inasmuch as the answers had already been forwarded, the Committee thought it would be unwise now to alter the decision previously come to.

The initial ceremony in connection with the building of a new Catholic Church at Mountain Ash, took place last week. The church is designed to supersede the present unpretentious school-chapel in Napier Street. The new church, pleasantly situated on the hillside at the entrance to the busy little township, when completed, will present the simple but graceful outlines of an edifice in the decorated style of the Gothic order, and is being erected by Messrs. Collins and Godfrey, Tewkesbury, from designs by Mr. Bernard Smith, F.R.I.B.A., whose services were employed in the planning of the

London Law Courts. It is estimated to cost over £3000.

CASTLETON.—The foundation stones of a new Wesleyan Chapel and schools to take the place of the old building, which has done duty for nearly a century, were laid a day or two ago. The new buildings are being erected on a site off the Chapel-en-le-Frith Road. They comprise chapel, school, vestry, class-rooms, kitchen, lavatories, with heating vault, cellars, &c. The buildings will be entered through a porch in the angle, with arched, moulded, and enriched doorway and small traceried window. The chapel will be 50 ft. long by 33 ft. wide, divided into five bays by internal buttresses arched over to form an arcade on each side, enclosing mullioned windows. In the gable towards the road will be a large five-light stone window, with cusped tracery, and at the chancel end a similarly treated window, intended to be filled with painted glass. The end bay will be raised 3 ft. above the chapel floor, and treated as a combined choir and chancel, with rich traceried screen, reredos, &c. The school, which will be 30 ft. long by 22 ft. wide, will form a transept divided from the chapel by folding doors. The chapel has a moulded and traceried hammer beam roof, ceiled at the collar. All the internal woodwork will be of pitch pine, stained and varnished. The windows are to be fitted in with leaded lights in "cathedral" tints. Externally the buildings are to be of the local limestone in regular coursings, with Stoke stone dressings. The contracts, amounting to £1571, have been

let to Mr. Jas. Fidler, of Eckington, for the builders' work; Messrs. Wheat and Son, of Castleton, for the joiners' work; Messrs. Chadwick and Sons, of Sheffield, for the plasterers' and slaters' work; Mr. George Rusling, of Sheffield, for the plumbers' and glaziers' work; and Mr. Roe, of Castleton, for the painters' work. The architect is Mr. Herbert W. Lockwood, of Pinstone Street, Sheffield. Although the contracts amount to a little over £1500, the estimated cost of the building is £2000.

DUNDEE.—The pipe organ built for Lasswade Parish Church by Mr. John R. Miller, Dundee, has been erected in the choir gallery behind the pulpit, and occupies two side arches. The console is placed in the centre arch, and in front of the choir seats. Tubular pneumatic action is applied to the whole organ with great success.

EAST MARKHAM.—The restoration of the church at East Markham, near Retford, which was commenced last June, is almost completed. This is a continuation of the work which was executed in 1883. The church is a neat Gothic edifice, with chancel and side aisles, and a lofty embattled tower, containing six bells; it has several ancient monuments and armorial paintings of the Markhams, Cresseys, Merings, and others. The floor has been entirely relaid on concrete, with a raised surface of wood for seating accommodation. There is to be added a new pulpit in oak to correspond with the other furniture. A new altar, consisting of Casham stone, measuring 12ft. long, 4ft. wide, and 3ft. 6in. high, and weighing about four tons, has been placed in the chancel, which is to be elaborately fitted. A heating apparatus has also been fixed at a cost of upwards of £100, and was supplied by Mr. John Grundy, London. In taking up the old floor the original altar was discovered, and also a stone, upon which was a single name. The architects of the restoration are Messrs. W. Bucknall and J. N. Comper, of Westminster, S.W., and the builders Messrs. Rudd and Son, of Grantham.

GLASGOW.—At a recent meeting of the Dean of Guild Court, Lord Dean of Guild Graham made a statement of the work done during the last twelve months. Though not exactly a record year, it had been far and away the largest year since 1875-76. The number of linings granted had been 676, and the value of the buildings authorised had been £1,851,005, an increase of no less than £560,000 over last year, and £830,000 more than the average of the last ten years. Examining the figures in detail he found that, as in recent years, the chief progress had been in two-room tenements, the number of which had been 2755, as compared with 1733 last year and 1247, the average of the last ten years. In one, three, and four-room tenements there had also been an increase, the figures being respectively 811, 972, and 204, as compared with 523, 776, and 166. Five-room houses seemed less in favour, as only 24 linings had been passed, and for larger-sized houses the number had only been 104. For shops 235 linings had been granted, which compared unfavourably with last year, when the figures were 277, but it was considerably above the average of the ten years, which was only 136. Public buildings naturally fluctuated, as one large building in any one year might turn the scale, but with four buildings of a value of £180,000 the year had more than doubled the recorded average. Those who were specially interested in churches and schools would be disappointed at a falling off, the figures being £79,600, as compared with £99,150 and £96,700 in the last and previous years, but here, again, the average had been more than maintained, that average having been £63,000. In warehouses and shops the progress had been most marked, the year having been a record one with 141 linings, valued at £486,690, which overtopped even the great year 1875-76, when the amount was £445,174.

LONDON.—For some months past, under the direction of the Board of Works for the

St. Giles' district, a public lavatory has been in course of construction at High Holborn, near the Royal Music Hall. The work was designed and executed, at an estimated cost of £3697, in accordance with the drawings and specifications of Mr. George Wallace, engineer to the Board, the contractors being Messrs. Killingbank and Co., of Camden Town. The internal fittings are of the most modern description, and the sanitary arrangements have been carried out by Mr. G. Jennings, of Palace Wharf, Lambeth. Considerable difficulty was experienced in making the necessary excavations beneath the public way owing to the presence of a cast-iron tube, about four and a half feet in diameter, embedded in solid brickwork. This tube was constructed some thirty years ago for the purpose of conveying parcels between the General Post Office at St. Martin's-le-Grand and Euston. The removal of the obstruction involved some delay in the construction of the lavatory, which has been built for the convenience of men and women, and erected under the provisions of the Public Health (London) Act, 1891.

MANCHESTER.—Manchester is at last to have a grain elevator. The contract for the work has been let to the American elevator builders, Messrs. John F. Metcalf and Co., of Chicago, and the elevator is to be ready for traffic in January, 1898. The storage capacity of the building will be of the most complete character, and the elevator building will have room for the storage of 40,000 tons of grain. There will be 226 bins in the house, varying in storage capacity from 37 to 300 tons. The bins are to be constructed of wood; and the exterior of the building will be brickwork. The building will stand at an average distance of 340ft. from the front of the quay, where there will be a tower containing a marine leg, which will be lowered into the hold of the vessels, and is designed to discharge a cargo of grain at the rate of 350 tons per hour. The appliances for the delivery of the grain will be on an extensive scale and of the most complete character. An important feature in the house will be Metcalf's patent dryer, used in America with most satisfactory results. The dryer will be capable of drying 50 tons of grain at each operation, and grain can be moved to or from the dryer from or to any bin in the house.

NEWRY.—Whilst a labourer was engaged raising some bank gravel in a field near the Glen, opposite Tower Hill, the bank gave way, and revealed a large cave or tunnel. The interior was explored and it turned out to be a fine building some 25 yards long in two compartments, about 4ft. high, and 5ft. broad, well faced in both sides with stone, and covered over the top with very large stones, some 3ft. broad, passage quite dry, altogether forming a curious underground structure.

SHEPLEY.—St. Paul's Church, Shepley, was reopened last week after alterations and improvements. The alterations, carried out under the superintendence of Mr. W. Cooper, embraced the removal of the old-fashioned pews, which have been replaced by substantial oak benches, with sloping backs; the erection of a gallery over the west end, approach to which is gained by a staircase from the body of the church—the gallery taking the place of an old one which was narrow and dangerous; the erection of a new oak vestibule, the upper portion of which is filled in with stained glass, and which serves as a shield to the main entrance; the erection also of a handsome oak screen which divides the chancel from the nave, and the enlargement of the chancel. This latter has been effected by extending westwardly into the nave beyond the chancel arch; and the spaces on the north and south sides of the part extended are fitted with oak benches, which are set apart for the lady members of the choir; and the general idea in carrying out one part of the improvements has been to give more space in the chancel and sacarium, the general improvement of the entrances and exits of the church, and

the repair of the edifice. The floor of the chancel has been laid with marble mosaic, and tiled pavements have been laid down on spaces which were formerly flagged. The heating arrangements have been greatly improved, and the external structure has been overhauled, and many greatly needed repairs carried out. The works have been well carried out from designs and under the superintendence of Mr. W. Cooper, architect, Huddersfield, by the following contractors:—Mason, Mr. Harris Wood; joiners, Messrs. T. and J. Hawley; plumber, Mr. G. Lindley; slater, Mr. W. E. Jowett; plasterer, Mr. A. Jessop; mosaics, Messrs. Pateson; tiling, Messrs. Maw and Company; decorating, Messrs. Lunn and Cardno; and heating, Mr. J. W. Thornton.

SHREWSBURY.—The ancient church of St. Alkmund, Shrewsbury, has been reopened after partial restoration. The work of restoration has been to render the inside of the building more church-like and dignified in form. As soon as further funds are obtainable it is proposed to fill in the windows with stone tracery and improve the flat plaster ceiling with wood principals and panelling; to open out to view the ancient tower arch (now blocked up with a brick wall), and generally to improve the appearance both internally and externally. The work just executed has been the removal of the west gallery (which on examination proved to be absolutely rotten and unsafe), the lowering and reconstruction of the seating to a more convenient form, putting concrete and solid wood block floors under same in place of the old boarded floors, which were found to be in a bad state of dry rot; the formation of a chancel by throwing out a projection into the nave, in which are placed oak stalls for the clergy and choir; and the erection of oak screens, for forming vestries and organ chamber. The organ, which formerly stood in the west gallery, is now placed in the chancel, Mr. Ebrall, organ builder, of Shrewsbury, having entirely reconstructed it for its new position. The new chancel floor is paved with blue stone in squares, the sacarium with polished coloured marbles; and an oak-traceried pulpit is placed against the north screen. One of the nave windows has been filled in with stone tracery and cathedral glass, and it is proposed later to fill in the other windows in a similar manner, though with some variety in detail. A new porch has been erected on the south side of the church. The old porch at the east end of the church has been built in, and forms a choir vestry. The whole of the work has been executed by Mr. E. Price, builder, of Shrewsbury. The architect was Mr. A. E. Lloyd Oswell.

STONEHAVEN.—The designs of the proposed new Corporation lodging-house at Stonehaven, submitted by Messrs. J. and J. A. Scuttar, architects, Aberdeen, have been awarded the first place by the professional assessor, and the architects instructed to proceed with the preparation of the working plans, &c. The selected site is on the south side of Cowie Lane, to which the building will have a frontage of 52ft., extending back 63ft. The front elevation shows a two-story building of neat design, although not ornate. The main entrance is in the centre, and leads to an entrance hall, from which, to the right, is the day-room, with scullery, superintendent's office, and shop; while to the left the superintendent's house, comprising kitchen, parlour, bedroom, and bathroom, is placed. To the rear, in the main building, is a dormitory for twelve cubicles, with bathroom and lavatory. The out-buildings consist of a wash-house for use of lodgers, store, coal cellars, and lavatory accommodation, with an airing yard. The staircase, which is conveniently situated in the centre of the building, commands all the dormitories. The upper floor consists of three dormitories, containing twenty-eight cubicles, with ample lavatory accommodation, a sick room being provided in addition. The cubicles have been designed so that each has a separate window, thus assuring complete ventilation. The whole arrangements will be on modern and improved principles.

Enquiry Department.

"ARCHITECTURE IMPROVED."

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have in my possession a little book entitled "Architecture Improved, in a Collection of Modern, Elegant, and Useful Designs, &c., in the taste of Inigo Jones, Mr. Kemp, &c. Designed by Robert Morris, surveyor, late of Hyde Park Street, London; and sold by Robert Sayer, opposite Fetter Lane, Fleet Street (1755)." I shall be glad if you could inform me whether it is of any value as a curio.—Yours faithfully,

J. G. R.

There are many of these books. They were published at a time when Architecture was considered a thing to be learnt by rule and proportion, and that, given a certain amount of "taste," any person could, by the aid of rules, produce living Architecture. When these books were printed the Gothic tradition still survived among the workmen, so that good work was produced by their means, because round the lifeless skeleton of scholasticism the mason and the carver built their quiet, unassuming "classic" edifices. The book has little pecuniary value, and is only interesting to the student.—ED.

SOCIETY MEETINGS.

The Architectural Association.—The Architectural Association commences the winter session this week. It will hold its annual general meeting on Friday, at No. 9, Conduit Street, W., when Mr. Hampden W. Pratt, F.R.I.B.A., will deliver his presidential address and distribute the prizes, medals, and certificates. The drawings submitted in competition for the various prizes offered by the Association will be exhibited, also student's drawings executed in the studio and school of design during the past session. The classes, which are held at 56, Great Marlborough Street, commence on October 11, and the studio re-opens on October 12.

The Institution of Civil Engineers.—The prize list of the Institution of Civil Engineers for the session 1896-97, now made known, contains awards as follows:—The Howard prize of 50 guineas to Mr. Hilary Bauerman, in recognition of his work on the metallurgy of iron. For original papers presented to the Institution, Telford medals, with premiums of books or instruments, to Messrs. H. A. Humphrey, for "The Mond Gas-Producer Plant and its Application;" to Colonel Penny-cuik, R.E., for "The Diversion of the Parivar;" to Mr. E. C. Shankland, for "Steel Skeleton Construction in Chicago;" to Mr. Dugald Drummond, for "High Pressure in Locomotives;" and to Mr. Thomas Holgate, for "The Enrichment of Coal Gas." George Stephenson medals and Telford premiums to Mr. Cruttwell, for "The Tower Bridge Superstructure," and to Professor Unwin, for "A New Indentation Test for Determining the Hardness of Metals." Watt medals and Telford premiums to Messrs. Hay and Fitzmaurice for their joint paper on "The Blackwall Tunnel." The Telford premium list contains the names of Messrs. Donaldson, Ripper, Ravenshaw, Worth, Santo Crimp, Homfray, Nichols, Ramsay, H. D. Smith, and Major Leach, of the Corps of Engineers, United States Army. Awards to students attached to the Institution comprise—The James Forrest medal to Mr. A. H. Jameson, the Joule medal to Mr. H. W. Barker, and Miller prizes to Messrs. Beer, Brand, Berridge, and Kitchin for papers read in London, and to Messrs. Godfrey and Garvie, of Manchester, Mr. Carter, of Newcastle, and Mr. Hurt, of Leeds. This year marks the first award by the Institution of the medals named after James Prescott Joule, the discoverer of the mechanical equivalent of heat, and James Forrest, whose long service as secretary and the care devoted by him to fostering the student class have, on his retirement, been commemorated by the foundation of this medal.

Trade and Craft.

WORKMEN'S COMPENSATION ACT.

The concise and well arranged handbook to the Workmen's Compensation Act, 1897, prepared by Mr. M. Roberts-Jones, will be found an easy key to the workings of an important but little understood Act. Questions of liability often trouble employers in the building trades, and his liability in respect of workmen in cases of accident is a matter in which the master may easily familiarise himself by perusal of Mr. Roberts-Jones's well-written handbook. In his treatise, the author has been thorough and at the same time lucid, and we recommend his work to those interested in the subject.

STEAM DUST-CARTS.

The Chiswick Urban District Council has shown a good example to other districts by the adoption of a new kind of dust-cart, which is known as the Thornycroft Patent Steam Dust-Wagon. The carts, which have a capacity of six cubic yards, are built on the familiar tip-wagon model. They can carry a weight of four tons. The weight of a car unloaded is three tons. The cars are driven by steam, the boiler being of the Thornycroft launch type, arranged to pass air directly over the heating surface, so as to check the generation of steam when necessary. The engine can run up to 400 revolutions a minute, and can be thrown in and out of gear without shock by means of a special clutch. This is, of course, very convenient when constant stoppages have to be made. A run of five or six hours can be made without taking in water. During a working day of ten hours collecting dust and taking it to the tip, about two hundredweights of steam coal are consumed. On an average eighteen cubic yards of refuse are collected and tipped in the day. One man drives and steers. The Chiswick authorities estimate a saving of £250 a year on each steam wagon over the old system of collecting by horse carts.

TILE-LAYING—WHICH SECTION?

At a recent meeting of the Barry Trades' Council, held under the presidency of Mr. T. Evans, a letter was read from the local Master Builders' Association, in reply to a communication from the Council, stating that the question of laying brick tiles by plasterers was discussed at great length. It arrived at a unanimous decision that tile laying was work that should be performed by either bricklayers or masons, and not by plasterers. This decision was based on the ground that tiles were a manufactured article, and to lay them properly tools must be used which no plasterer ever used, and the Association was now fully determined to abide by this decision. Mr. Saunders, a representative of the Masons' Society, asked for the Council's acceptance or rejection of that ruling, as a plasterer was now employed in doing such work. Seeing that the Plasterers' Society was not represented that evening, it was decided the question be adjourned.

NATURAL GAS IN PHILADELPHIA.

A discovery of a remarkable kind is reported from Philadelphia. For some time past the proprietors of a stockyard near that city have been much troubled by the bubbling out of gas from wells sunk on their land, the effect of which was to render the water disagreeable for drinking and unfit for some other purposes. As a consequence fresh wells were sunk, until the number in all reached seventeen. The same phenomenon, however, was observable. At last, by accidental contact with a torch, it was found the gas was combustible. An engineer then tried leading it through pipes, and lighting it in the usual way. The gas is said to make a capital illuminant, largely free from smell and smoke. It has been used, therefore, for lighting all the works, and the supply shows no signs of exhaustion; on the contrary, it is said there appears to be enough to light half the city.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ACTON.—For the erection of additions, &c., to accommodate 600 children, and for caretaker's house, at the Beaumont Park Board Schools, Acton-lane, for the Acton School Board. Mr. E. Monson, architect to the Board, Acton Vale, W.

Lott and Son	£10,045 0	G. Hooper	£8,225 12
Leeder and Co.	9,343 0	C. F. Kearley	7,994 0
Pattinson and Co.	9,195 0	Exors. of Nye	7,965 0
J. and M. Patrick	9,138 0	Goole and Son	7,800 0
J. W. Brooking	8,947 0	W. Blackburn, Chis-	
Godson and Sons	8,317 0	wick, W.	7,750 0

* Accepted subject to the approval of the Education Department.

AWSWORTH.—For sewerage and sewage disposal works, for the Basford Rural District Council. Mr. H. Walker, C.E., Newcastle-chambers, Nottingham. Quantities by engineer:—

J. F. Price	£3,077 7	Hawley and Son	£2,522 5
H. Vickers	2,998 10	H. H. Barry	2,320 0
J. H. Vickers, Ltd.	2,527 0	James Holmes	2,249 0
J. Lane and Son	2,475 10	J. Holme	2,156 0
Amos Jenkins	2,440 5	Cope & Raynor, Gre-	
R. Holmes and Co.	2,350 0	gory-street, Lenton*	2,096 13

* Accepted.

BALLYGOWAN.—For re-roofing and re-ceiling Presby-terian Church, for the Committee. Mr. A. H. De Wind C.E., architect, Comber, Belfast.

Andrew McRoberts
 £321 | Thos. Morrow, Bally- | |

David McNamee
 318 | gowan | £349 |

James Grogan
 350 | * Accepted. | |

CHADWELL HEATH (Essex).—For a further section of the foundations, and a lodge, in connection with a lunatic asylum at Chadwell Heath, Ilford, for the West Ham Corporation. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.

J. Jackson	£8,066	Cliff Ford	£6,235
J. and M. Patrick	7,010	Gregar and Son, Strat-	
G. Sharpe	6,900	ford*	6,000

* Accepted.

DRAYCOTT.—For extensions to Victoria Mills, for Mr. E. T. Hooley. Mr. G. S. Doughty, architect, Britannia-chambers, Pelham-street, Nottingham. Quantities by the architect:—

J. Shaw	£4,600	W. E. Shaw	£4,220
J. F. Price	4,551	H. Vickers	4,220
J. W. Woodsend	4,500	F. Messom	4,219
T. Barlow	4,470	H. J. Robinson	4,140
W. Manle	4,400	John Brown	4,065
E. Woodward	4,275	F. Perks and Son, Long Eaton*	4,025
G. Youngman and Son	4,253		
J. H. Williamson and Co.	4,245		

* Accepted.

DYMOCK (Gloucestershire).—For the erection of a police-station, for the Standing Joint Committee. Mr. M. H. Medland, county architect, 15, Clarence-street, Gloucester:—

H. A. Forre	£1,950 14	E. W. Wilkes	£1,365 0
A. King and Sons	1,648 0	Gurney Bros., Glou-	
W. Jones	1,620 0	cester (accepted)	1,297 0

FOLKESTONE.—For the erection of fifty artisans' dwellings, East Cliff, for the Corporation. Mr. J. White, borough engineer, Folkestone:—

W. J. Adecock	£16,970 0 0	Stephen Vant	£13,297 0 0
Multon & Wallis	16,490 0 0	G. Castle & Son	
Thos. Barden	15,498 0 0	Folkestone*	13,922 6 10
Thos. L. Dennis	15,470 0 0		

FORRES.—Accepted for the carpentry, plastering, slating, plumbing, and painting works in the erection of five artisans' dwellings in Market-street, for Mr. J. Mackenzie. Mr. P. Fulton, architect, Forres:—

A. and R. Dunbar, Elgin			
C. Brodie, Elgin			
J. Fraser, Inverness			
R. H. W. Forsyth, Forres			£950
W. Fordyce, Elgin			

GLEN PARVA.—For the erection of six dwelling houses for Mr. Edward Shardlow. Messrs Simpson and Harvey, architects and surveyors, Alliance-chambers, Leicester:—

Halford and Sons, Blaby	£1,410		
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The lowest of three tenders received.

GOSPORT.—For additions to house, 8, High-street, Gosport. Mr. W. H. Fry, architect and surveyor, Gosport:—

Vincent	£521	Gibbons	£485
Jube	520	Chrose	475
Lane	510	Lear	465
Rayley	516	Duga	450
Johns	460		

GROBY.—For the erection of workmen's dwellings, Ratby-road, Groby, for the Patent Victoria Stone Company, Ltd. Messrs. Simpson and Harvey, architects and surveyors, Alliance-chambers, Leicester:—

Joseph Plant	£3,820 16 3	J. E. Johnson and Son, Leicester*	£3,711 0 0
Hardington and Elliot	3,755 16 3		
Joseph Wright, South Wigston*	3,740 0 0		† Withdrawn.

HALIFAX.—Accepted for the erection of a school for 230 children, at SALTERS, Shipden, near Halifax, for the North-owran School Board. Mr. Joseph F. Walsh, architect, Lancashire and Yorkshire Bank Chambers, Halifax. Quantities by the architect:—

Masonry	Mitchell, Hyperholme	£1,300 0 0
Joinery	Farnell, Ambler Thorn	165 0 0
Heating	Nettleship, Halifax	81 0 0
Plastering	Bancroft, Halifax	24 9 0
Slating	Bancroft, Halifax	103 13 3
Painting	Hinchliffe and Hainsworth, Halifax	31 17 0
Concreting	G. Greenwood and Son, Halifax	183 13 0
Ironfoundry	Taylor and Parsons, Bradford	35 6 6
Plumbing	Nettleship, Halifax	165 0 0

LEEDS.—Accepted for building St. Matthew's Church, Chapel Allerton, Leeds. Mr. G. E. Bodley, architect, 7, Gray's Inn-square, W.C. Quantities by Messrs. North-croft, Son, and Neighbour, 8, St. Martin's-place, Charing Cross, W.C.:—

Stephens, Bastow, and Co., Ltd., Bristol	£13,276
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LEICESTER.—For the erection of business premises in East Gates, Leicester, for Messrs. T. Crowe and Co. Messrs. Simpson and Harvey, architects and surveyors, Alliance-chambers, Leicester:—

J. O. Jewsbury	£2,945 0 0	J. E. Johnson	
T. C. Tyers	2,940 0 0	and Son	£2,880 0 0
T. & H. Herbert	2,937 0 0	J. Wright	2,837 6 3
Hutchinson & Son	2,930 0 0	Riddett and Son, C. Wright	2,909 13 0

* Accepted.

This work has been considerably enlarged by increasing the front portion of the premises to four stories in height.

LONDON.—Accepted for erecting houses, Malvern-road, for Mr. J. W. Kitson. Mr. R. Banks Martin, architect, 103, Plashet-grove, East Ham, and East-street, Barking:—

J. H. Stillwell	£950
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LONDON.—For 600 yards of unclimbable fencing, &c., for the Outfall Works, Hendon, for the Urban District Council, N.W.
Mr. S. S. Grimley, engineer and surveyor:—

	Fencing fixed complete. Per Yard.	Fencing delivered only at Hendon Station. Per yard.	Gates fixed complete. Per pair.	Gates delivered only at Hendon Station. Per pair.
W. Gibson	8 s. d.	8 s. d.	2 s. d.	2 s. d.
A. and R. Currie	8 6	7 6	7 0	6 10
F. Morton and Co.	8 0	8 0	9 0	9 0
Hayward and Sons	7 4	6 10	8 5	7 12
Hill and Smith	5 10	5 4	6 10	6 0
W. J. Priest	5 9	5 3	7 7	6 12
Raybould and Co.	5 9	5 3	6 17	6 2
J. Elwell	5 8	5 0	6 0	5 6
M. Miley	5 7 1/2	5 1	6 2	5 10
Brooks and Co.	5 6	5 0	8 10	8 0
Bayliss, Jones, and Bayliss, Cannon-street, E.C.*	5 5	5 0	6 0	5 10
Walker Bros.	5 2 1/2	4 10	7 13	6 18

* Recommended for acceptance.

LLANDILO.—For constructing water supply works, Llandylan, and laying about five miles of cast-iron water mains, for the Urban District Council. Mr. D. Jenkins, Engineer to the Council, Llandilo:—
George Mercer £4,050 Ernest Jones £2,951
Benjm. Davies 3,500 Pritchard Davies, Llandilo 2,950
Henry Herbert 3,120 Sheffield and Evans 2,825
Evans and Bailey 3,020
* Accepted conditionally.

Several others tendered for pipes and fittings, and several for labour only.

LONDON.—For a sub-station to the Chelsea Electricity Supply Co., Ltd., at Slaidburn-street, Chelsea. Mr. Alfred Roberts, architect, 18, Nelson-street, Greenwich, S.E.:—
G. Wade £1,556 C. F. Kearley £1,296
G. Holliday and Greenwood 1,387 Collis and Co.* 1,287
Cole and Lightfoot 1,297
* Accepted.

LONDON.—For building the superstructure of the "King and Queen" public-house, Rotherhithe-street, S.E. for Messrs. Crowley and Co., of Alton, Hants. Mr. E. J. Stevens, architect, 246, Camberwell-road, S.E.:—
Falkner and Son £2,087 Holloway £1,996
Downs 2,050 Chafee and Newman* 1,885
Holliday and Greenwood 2,047 Eames * Accepted. 1,960
Tyerman 2,000

LONDON.—For the erection of lunatic wards at the Infirmary, High-street, Lewisham, for the Guardians of the Union. Mr. R. Williams, architect, 17, Effingham-road, Lee, S.E.:—
E. Mill £3,800 Jerrard and Son £3,372
Thomas and Edge 3,622 W. Irwin 3,247
Martin, Wells, and Co. 3,498 T. J. Barden, Maidstone 2,833
C. J. Jones 3,700
Chessum and Son 3,383
* Accepted.

[Architect's estimate, £5,154 9s. 7d.]

LONDON.—For rebuilding No. 2, Aldermanbury, E.C., and premises in Fountain-court in the rear, for Messrs. Bradbury, Greatorex, and Co., Limited. Mr. Howard Chaffield Clarke, architect, 63, Bishopsgate-street, Within, E.C.:—

Contract No. 3.
Holland and Hannen £6,940 E. Lawrance and Sons 6,707
Hall, Beddall, & Co. 6,865 Ashby and Horner* 6,590
* Accepted.

LONDON.—For alterations and repairs, &c., to Nos. 24 and 5, Cannon-street, and No. 8, Watling-street, E.C., for Messrs. Keller, Grabowski, and Co., Mr. Edgar Stones, architect, St. Lawrence House, Trump-street, E.C.:—

Structural Repairs and alterations. Decorations. Total.
Battley, Sons, and Holness £400 £794 £1,194
Hewitt and Sewell 345 650 995*
C. P. Roberts 438 301 739*
* Accepted. * Withdrawn.

LONDON.—For permanent works of kerbing, channelling, metalling, tarpaving, surface water drainage, &c., for the Urban District Council of Hendon, N.W. Mr. S. S. Grimley, engineer and surveyor:—

Allen Bros £2,200 13 5 E. W. Hollingsworth £2,011 3 3
M. S. Kitteringham 2,122 17 6 R. Ballard, Ltd. 2,014 17 8
Thos. Adams 2,014 17 8
N.W. (accepted) 1,977 9 6
Child's Hill.

MONNOW-ROAD.—For adapting house for schoolkeeper at Monnow-road Schools for the London School Board. Mr. T. J. Bailey, architect:—
G. Brittain £234 0 W. Hailes and Son £191 14
J. F. Ford 234 0 Johnson and Co. 189 0
J. C. Chalkley 195 0 J. and A. Oldman* 161 0
H. J. Williams 192 0
* Accepted.

MORECAMBE.—Accepted for building two terrace-houses, for Mr. R. B. Abbott. Mr. J. Manshull, architect, Bank-crescent, Morecambe. Quantities by architect:—

Masonry.—Wm. Poole, Ashton-road, Morecambe £1,110
Joinery and Carpentry.—Willis Bros., Poulton-square, Morecambe 520
Slating and Plastering.—W. J. Cross, Heysham-road, Heysham 208
Plumbing and Painting Not let.

NARBOROUGH.—For the erection of four small villas, for Mr. Samuel Squire. Messrs. Simpson and Harvey, architects and surveyors, Alliance-chambers, Leicester:—
W. Moss £1,335 J. Wright, South Wigston* £1,232
W. Coulson 1,240
* Accepted for three houses at the sum of £270.

NEWCASTLE.—Accepted for the erection of the Victoria Jubilee Junior School, Bond-street, Byker, for the School Board. Mr. Chas. Walker, architect, 26, Eldon-square, Newcastle-on-Tyne:—

Alexander Pringle, Gateshead, Durham £8,865 9 1
NORTH EVINGTON.—For the construction of Roseberry-street, Lancaster-street, and Leicester-street, for Mr. J. H. Cooper, Sir J. F. L. Rolleston, and the Lancaster Land Society. Messrs. Simpson and Harvey, and Rolleston and Co., joint surveyors, of Leicester:—
Hutchinson & Sons £2,455 T. Philbrick, Leicester* £2,062 3
Stimpson & Rolleston 2,153 14
* Accepted.

NORTHWRAM.—For erecting residence for Mr. J. Alderson. Mr. J. F. Walsh, architect, Bank-chambers, Halifax:—

Masonry.—A. Ramsden, Queensbury
Joinery.—J. Booth, Hipperholme
Plastering.—J. Bancroft and Son, Halifax
Slating.—J. Bancroft and Son, Halifax
Plumbing.—C. G. Calvert, Lightcliffe
Concreteing.—J. & W. Bates, Bradford
Heating.—C. G. Calvert, Lightcliffe

OVER (Cheshire).—For the construction of a covered service reservoir, Whitby-lane, Over, for the Winsford Urban District Council. Mr. J. Waring, engineer and surveyor, Winsford:—

Bradcock £5,583 7 7 Holme and King £4,583 4 2
Sayer & Randall, 5,322 13 6 Mathews, Nantwich* 4,411 0 0
G. Bell 5,077 10 6
* Accepted.

At schedule of prices.

PONDER'S END.—For additions and reinstatement after fire at the works of the Corticine Floor Covering Company, Limited, Ponder's End. Mr. Howard Chaffield Clarke, architect, 63, Bishopsgate-street Within, E.C.:—
Collis and Sons £7,189 Ashby and Horner £6,697
Brown, Son, and Blomfield 6,980 E. Lawrance and Sons* 6,470
Clarke and Bracey 6,512
* Accepted.

PORTSMOUTH.—For addition to Omega-road Board School, for the Portsmouth School Board. Mr. A. H. Bone, architect, Cambridge Junction, Portsmouth. Quantities by architect:—
Lear £4,918 Perkins £4,805
T. P. Hall 4,904 J. Crookrell 4,800
Matthews 4,900 W. Learmouth 4,725
E. and A. Springings 4,850 H. Jones, Southsea* 4,850
* Recommended for acceptance.

RHAYADER.—For the erection of new Wesleyan church, for Mr. F. G. Evans, architect, Castle-road, Builth Wells:—
M. Lloyd £1,399 0 J. Wren, Newbridge
Davies and Son 1,395 10 on-Wye* £1,134
* Accepted.

SOUTHALL.—For erecting houses and shops, for Mr. T. Haines. Mr. T. Newell, architect, Southall:—
Chamberlin Bros. £1,442 Jamieson £1,597
Executors of T. Nye 1,313 A. and B. Hanson 1,244
Kearley 1,310 W. Brown 1,196

SOUTHALL.—For erection of houses and shops, for Mr. C. Culland. Mr. T. Newell, architect, Southall:—
Chamberlin Bros. £1,459 Jamieson £1,378
Executors of T. Nye 1,424 A. and B. Hanson 1,347
Kearley 1,396 W. Brown 1,246

SOUTHGATE.—For the erection of two villas at Southgate. Mr. Geo. K. Deakin, architect, 110, Strand, W.C. Quantities supplied:—
C. Newby £1,520 Brown and Sweetland £1,386
S. Goodall 1,450 J. Pocock 1,367
W. Wheeler 1,389

STAINTON-IN-CLEVELAND.—For pulling down and rebuilding the "Blacksmith's Arms" inn, for Messrs. Rampton and Co., Limited, West Hartlepool. Mr. W. H. Linton, architect and surveyor, Stockton-on-Tees. Quantities by the architect:—
W. A. King £1,450 19 4 A. J. Cooke £1,237 0 0
S. Coates 1,442 11 4 H. F. Linton and J. Coates 1,429 12 6 Son, Stockton-on-Tees* 1,238 12 3
A. Atkinson & Co. 1,418 18 3
J. Davidson 1,490 0 0
* Accepted.

TOOTING GRAVENEY.—For exterior painting at the Tooting Graveney Schools for the London School Board. Mr. T. J. Bailey, architect:—
R. E. Williams & Sons £187 J. Garratt and Son £126
Holloway Bros. 165 Lilly and Lilly* 107
Rice and Son 136
* Accepted.

WAKEFIELD.—For erecting two villas, Bradford-road, for Mr. C. Whitehead, College-grove, Wakefield. Mr. Willie Wrigley, architect, 6, Westgate, Wakefield. Quantities by architect:—

Building.—B. Lockwood, Horbury-road, Wakefield £458 0 0
Tiling.—J. Illingworth, Bank-street, Wakefield £3 5 0
Plastering.—J. Platts, Providence-street, Wakefield 64 3 0
Carpentry and Joinery.—H. Blackburn, Albion-court, Wakefield 225 10 6
Plumbing.—G. F. Wild, Kirkgate, Wakefield 117 10 6
Painting.—Turner and Sons, Wood-street, Wakefield 13 6 0
£961 14 6

WALKERN.—For the erection of a detached house, Walkern, Herts. Mr. J. Randall Vining, architect and surveyor, 80, Chancery-lane, W.C.:—
W. French £1,199 F. J. Bailey £1,060
J. Redhouse 1,198 J. H. Aldridge* 947
F. Newton 1,090
* Accepted.

WESTBURY-ON-SEVERN (Gloucestershire).—For the erection of a police-station, for the Standing Joint Committee. Mr. M. H. Medland, county architect, 15, Clarence-street, Gloucester:—
H. A. Forse £1,876 10 J. Coleman £1,670 0
A. King and Sons 1,677 0 Wm. Jones, Gloucester (accepted) 1,590 0

WEST HUMBERSTONE.—For the construction of St. Barnabas-road, for Mr. J. H. Cooper. Messrs. Simpson and Harvey, architects and surveyors, Alliance-chambers, Leicester:—
Stimpson and Rolleston £1,283 12 4
Thomas Philbrick 1,265 14 7

WESTON-SUPER-MARE.—For the erection of laundry buildings, Moorland-road, Weston-super-Mare, for the Weston Sanitary Steam Laundry Company. Mr. Sydney J. Wilde, architect, Boulevard-chambers, Weston-super-Mare. Quantities by Mr. Maynard Froud, Bristol:—
Wm. Chubb £1,949 Charles Taylor £1,682
John Perkins 1,928 R. Wilkins and W. S. Skinner 1,673
Edward Walters 1,830 Love and Waite 1,650
C. and E. S. Stradling 1,700 Keen and Keen, Weston-super-Mare* 1,374
Elijah Love 1,685
* Accepted.

WINWICK.—For the erection of a County Asylum, Winwick, near Warrington, for the Lancashire Asylums Board. Messrs. Harry Crisp and W. S. Skinner, architects, Bristol. Quantities by Messrs. Hurrell and Taylor, Manchester:—
R. Neill and Sons, Manchester £253,000

YORK.—For erecting stores, offices, warehouses, and public hall, Railway-street, for the Equitable Industrial Society. Messrs. Athron and Beck, architects, Market-place, Doncaster. Quantities by architects:—
T. S. Ullathorne £20,083 12 0 Jackson Bros. £15,993 0 0
John Goffton 19,501 14 6 H. Arnold and Parker & Sharp 17,963 2 5 Son, Printing Wm. Bellesby 17,616 0 0 Office-street, John Kiswick & Sons 17,108 0 0 Doncaster* 14,560 0 0
* Accepted for the whole of the work.

CONTRACTS OPEN.

BOROUGH of KINGSTON-UPON-THAMES.

TO ROAD CONTRACTORS AND OTHERS.
The Corporation invite TENDERS for SEWERING, LEVELLING, MAKING, KERBING, CHANNELLING, PAVING, and LIGHTING Lincoln-road, in the said Borough, in accordance with plan and specification prepared by the Borough Surveyor, which can be seen at his office, Clattern House, in the said Borough, where forms of Tender can be obtained.

Sealed Tenders, endorsed "Tender for Road Making," to be sent to me on or before WEDNESDAY, OCTOBER 13th, 1897.

The person whose Tender is accepted will be required to enter into a contract and a bond (with two sureties) for the due performance of the work.

The lowest or any Tender will not necessarily be accepted.

Dated this 24th day of September, 1897.
HAROLD A. WINSER,
Clattern House, Kingston-upon-Thames. Town Clerk.

URBAN DISTRICT COUNCIL of BROMLEY.

TO BUILDERS AND OTHERS.
The Urban District Council are prepared to receive TENDERS for the ERECTION of a FIRE BRIGADE STATION and STABLES at West-street, Bromley, in accordance with the plans and specification which may be seen at the Office of the Council's Surveyor.

The bill of quantities and forms of Tender may be obtained on payment of Two Guineas, which will be returned on receipt of a bona-fide Tender.

Tenders, endorsed "Tender for Fire Brigade Station and Stables," must be delivered to me as under, not later than THREE o'clock p.m. on TUESDAY, OCTOBER 12th next.

The Council do not bind themselves to accept the lowest or any Tender.

By order, FRED. H. NORMAN,
District Council Offices, Clerk to the Council.
Bromley, Kent.
September 29th, 1897.

WILLESDEN DISTRICT COUNCIL.

TO ROAD CONTRACTORS.
The Willesden District Council are prepared to receive TENDERS for the EXECUTION of certain ROAD-MAKING and PAVING WORKS in Churchill-road, Willesden Green.

Plans and specification may be seen, and all further particulars obtained upon application to Mr. O. CLAUDE ROBSON, M.Inst.C.E., Engineer to the Council, Public Offices, Dyne-road, Kilburn, N.W.

The Tenders, upon printed forms, and endorsed "Private Streets," to be delivered at the Offices of the Council not later than FOUR p.m. on TUESDAY, OCTOBER 12th, 1897.

The Council did not bind themselves to accept the lowest or any Tender.

By order, STANLEY W. BALL,
Public Offices, Clerk to the Council.
Dyne-road, Kilburn, N.W.
September 29th, 1897.

TO BUILDERS AND CONTRACTORS.

The Shoreditch Vestry invite TENDERS for the ERECTION of Three Blocks of ARTISANS' DWELLINGS in Moira-place and Plumber's-place, City-road. Persons desirous of submitting Tenders are requested to send in their names to the undersigned, on or before OCTOBER 11th, 1897.

A copy of the bills of quantities will be delivered to every builder desiring to Tender on his sending with his application a cheque, value Five Pounds, when drawings and specifications may be seen at the Offices of the Architect to the Vestry, Mr. ROLAND PLUMBE, F.R.I.B.A., 13, Fitzroy-square, W. The amount of deposit will, when the Vestry has come to a decision upon the Tenders received (but not before), be returned to the Tenderer, provided he has sent in a bona-fide Tender, and not have withdrawn the same.

Contractors will have to observe the trade-union rate of wages and hours.

Tenders, on official forms, must be delivered at the time and in the manner stated in the bills of quantities. The Vestry do not bind itself to accept the lowest or any Tender.

By order,
Town Hall, H. MANSFIELD ROBINSON,
Old-street, E.C. Solicitor and Clerk.
September 29th, 1897.

COMPETITIONS.

CITY OF NOTTINGHAM.

TO LANDSCAPE GARDNERS AND ARCHITECTS.
NEW CEMETERY.
The Public Parks Committee of the Nottingham City Council invite COMPETITIVE DESIGNS from Landscape Gardeners and Architects for the Laying-out and Planting of a new Cemetery at Basford, in the City of Nottingham, and for the ERECTION of the Lodges, Chapels, Crematorium, and necessary Buildings.

It is intended that the competition shall be divided into two portions, A, to be competed for by Landscape Gardeners for the laying-out and planting of the site, and B, to be competed for by Architects, for the buildings, &c.

Premiums of £100 will be paid to the designs placed first, and £50 for the designs placed second in each competition.

The conditions of the competition, with a plan of the site, may be obtained on applying to the City Engineer, Guildhall, Nottingham, on payment of £1, which will be returned on receipt of Competitive drawings, or on receipt of the conditions and plan in case the applicant does not compete.



A WEEKLY ARCHITECTURAL CAUSERIE.

The Changing Architectural Student.

A FEW years ago we should have visited an exhibition of architectural students' works in

a desponding frame of mind, knowing that we should be surfeited with endless copies of ancient examples, without the spirit of the old work, and impossible designs of railway stations in Early Gothic or Renaissance of a feeble nature. But to-day a look at the designs sent in for national competition at South Kensington, at the preliminary studies of the aspirant to architectural fame who would design with beauty and build with truth, and the intelligent efforts in handicraft by members of the Arts and Crafts School, will undoubtedly possess an interest such as was never excited by the scholarly but limp designs of the earlier students. Instead of certain historic styles being applied to any kind of building, regardless of their use, there is a tendency clear and unmistakeable on the part of the students to so arrange their building and material that the design shall be the pleasant outcome of requirements settled for them by the conditions of to-day. Crude and eccentric as their work is at times, a freshness and vitality is present which we failed to find in the earlier attempts. The training of the old and new student, as they may be called, is changed, and it is in this fact that the very different results may be traced. It is not so very long ago that the pupil in an architect's office was invariably given the five orders to draw out, with perhaps a hint that he would do well to acquaint himself with the dates of the "styles," with their characteristic windows, doors, and mouldings, not that he might have a knowledge and certain reverence for past work, but to enable him to face up a town hall or a swimming bath with a style of Architecture learned by rote, and, as a rule, to be generally applied. It was of little consequence that the windows of the "style" chosen gave insufficient light, or that the doors only opened square, providing the design might be classified and labelled Early English, Greek, or something Egyptian, if originality was desired. The twentieth century architect will probably go to his work with a training that relies more on the development of the emotional and imaginative faculties directed by hand and brain, and acting upon materials fashioned to fulfil purposes of a practical nature; beautiful results being obtained by the harmonious arrangement of forms, the natural outcome of actual needs. It is towards such an outcome that the present day student is groping, he is not content as formerly to make designs on paper and to placidly contemplate results; he would know the processes by which the result is obtained, and occasionally find time to assist in the fashioning of his thoughts. It is a pleasant and encouraging fact that the younger architects, and the still more youthful architectural student, may often be found in the sculptor's studio throwing about the clay with more energy than skill, perhaps; at the bench, cutting and carving; or in the warehouse

taking notes, intent on learning methods of construction and the treatment of materials. He is edging away from his respectable and "superior" brother student, and is beginning to learn the joy of executing portions of his work in design, to alter here and there as he fashions it, finding that some other form lends itself more easily to the tool he is using than the one he had shown on paper. Such is the changing architectural student. May he grow in grace and wisdom, with an eye to see, a heart to feel, and a hand to fashion; he will go far.

G. L. M.

Architect or Surveyor?

THE juxtaposition of these two names, when representing a single individual, being so continually before our eyes, brings with it a danger that we should do well to guard against. We are getting so accustomed to them that we shall soon begin to think that there is a necessary connection between the two, that there is something incomplete in the one without the other. When we hear one we unconsciously think of the other

to a confusion between the persons represented, or to a blending of the two into one. We seem to be evolving a new type, which will doubtless be called the "Archiveyor." The "architect and surveyor" differs from the "architect and engineer" and the "architect and artist," whom we have occasionally come across, in that he really combines two distinct occupations, while the latter titles are more or less tautological, as if one were to say "poet and versifier," or "architect and constructor." We are not so much alarmed about these, they are evidently adopted to enlighten the public as to the real qualities and functions of the architect, each man emphasizing the attribute which he thinks is the most likely to be overlooked—or possibly to proclaim to the world what particular function he feels most fitted to perform—though there is always the danger that they may have the opposite effect and mislead the public, who, when it sees architect and artist, may not unnaturally draw the inference that an architect is one thing and an artist another. To mislead the public is bad enough, but to mislead ourselves is worse, and that is what we think this title of "architect and surveyor" is likely to do. We have heard somewhere of a young



APSE OF LADY CHAPEL, ST. AGATHA'S, PORTSMOUTH. J. H. BALL, ARCHITECT.
DECORATED BY HEYWOOD SUMNER.

simply by the continual association of the words; somewhat in the same way as we think of the walrus and the carpenter. There is growing up a fictitious connection between the two names which is apt to lead

American architect who, returning home after finishing his studies in Europe, endeavoured to entice the wary client by means of a colossal brass plate setting forth his qualifications—"Student of the Royal Academy, and

L'ecole des Beaux Arts; for some time with the late William Burges, A.R.A., &c., &c. But clients were coy and hard to please, and it became necessary to do something for a living. Did he put up a still more colossal plate with "Surveyor" inscribed thereon? No. He was a man of original talent—he opened a boot store and made boots, and waited for the goddess of fortune to smile on him at her leisure. At first glance there does not seem to be any connection between building and boots, beyond the obvious one that there is a "B" in both; but to the eye of philosophy there is as much as exists between Architecture and surveying. This American was doubtless a man with a fine passion for construction; if he could not be constructing buildings, he would, at any rate, be constructing something—he would construct boots. The exercise of his instinct for artistic structure would still be possible, and he could console himself with the thought that if the unkind Fates had denied him the opportunity of providing a permanent covering and shelter for the whole body, it was still permitted to him to provide a temporary one for the feet. A man of modesty and real strength is always willing to begin at the bottom—it is vanity and conceit that runs to hats and bonnets.

the eye keen, that will not stifle the instinct for Art or cause the right hand to lose its cunning.

A.R.J.

Architecture at the Royal Photographic Society.

It is not often that an architect has the opportunity of finding out how his Art is viewed by the general public, but such an opportunity presents itself at the moment in the Exhibition of the Royal Photographic Society which is being held at the galleries of the Royal Society of Painters in Water Colours in Pall Mall. Presumably the exhibitors are representative of educated men with an inclination towards artistic tastes, and it is pleasing to note that a large number of the views are of purely architectural subjects. That very few of these are modern is scarcely to be wondered at, or that the few modern examples chosen are atrociously bad. Yet even from this a lesson may be drawn to the effect that Architecture is not considered in the light of a living Art; and that the public fail to see beauty even in that modern domestic style upon which we

want, and we need not introduce, startling and original and elaborate features; they call for repose and peace and beauty everywhere; that is the public as represented by their illustrators, the photographers.

G.A.T.M.

ANOTHER NOTED INN DOOMED.

NOT far up stream from Maidstone, where the Medway runs between two ridges which rise steeply from either bank, is the village of East Farleigh, the Ferlega of the Domesday Book, one of the most ancient sites in Kent, as its name shows. Ferlega means the "place of the way," or "passage," over the river, and there the ancient bridge still remains, picturesque with grey ribbed arches and massive buttresses, the highway now, as it has been for ages, from one side of the valley to the other. Crossing the stream over the bridge from the railway station, the road climbs the southern ridge, on the top of which stands an architectural group suggestive of Old England—the church, mainly of the fourteenth and fifteenth centuries, with its lych gate, and, just across the road, one of those old, half-timbered inns which harmonise so



A CHRISTMAS MAGAZINE HEADING. DESIGNED BY HEYWOOD SUMNER.

But the architect who for the same reason adds surveyor to his professional title has a different sort of consolation. So overwhelmed by his devotion to buildings is he, that if he cannot construct them at least he will survey them, and value them up, and negotiate suitable sites for them, and entice other people to buy and to sell them, and jealously guard their "ancient lights." But there is, to our mind, a certain touch of foebleness, a certain lack of dignity, about this attitude; it reminds one somewhat of the attitude of the jealous, rejected lover. We prefer the attitude of our boot-building brother. Design something he would—if not buildings, then boots. If Art will not favour him he turns his attention to her handmaiden, Craft, then the jealous mistress smiles on him, and the last is abandoned for the pencil and brush. To our way of thinking there is less danger in boot-making than in surveying, and for this reason: that neither the architect nor the public is likely to confuse Architecture with boot-making, while they may confuse it with surveying, and this is a bad thing for both. There is a danger of it being thought that you survey for dilapidations and value for a mortgage, in your capacity as architect, and build a warehouse in that of a surveyor. To those architects who do not find a sufficient living in the practice of Architecture pure and simple—and they are many—we would say, try and fill up your time with something that will keep the brain clear and

are rather apt to plume ourselves. It is apparently void to them of all that sentimentality of homeliness and comfort which so many of us are attempting to invest it with; while the older manor-house, with its creeper and decay, though conceived in a similar spirit, appeals strongly to them. If, however, examples of modern work be absent, almost the same may be said of the Classic and the Renaissance. On the other hand, photographers, at any rate, have not lost their love of the Gothic, and all that is possessed of Gothic spirit, in however a remote degree. The qualities which seem to have appealed to the exhibitors in Pall Mall are mystery, vastness, simplicity, and dignity of tone, together, occasionally, with the merely quaint and curiously interesting. Yet all the best photographs possess the higher qualities just enumerated, and show that their authors would have been quite as willing to have taken views of modern buildings as of old ones had they clearly illustrated these qualities. The public demand, if one may judge from what one sees in this small room, is for a noble, a beautiful, and yet a mysterious Architecture; for buildings which lead one on to peep round corners and try and find new beauties everywhere, and occasionally rest and absorb the simple dignity of simple forms around one. Is it too much to look for these high qualities in modern works? It should not be so; and many of us at least are striving after them. The public do not

well with an English landscape—the Old Bull Inn, now under sentence of demolition. Midway in the road, between the entrance to the churchyard and the timbered front of the inn, is a little group of chestnut trees, and beneath them a mounting block of four courses of stone. For centuries before the days of the bicycle and the steam-engine the traveller bound to Maidstone, to Rochester, or southward to the sea-shore, has mounted his pad nag here after refreshing the inner man at the Bull; and there the worn stones still stand, a humble monument of the days when journeys were made on horseback, and when this charming valley of the upper Medway knew no such sounds as the steam-whistle or the cycle bell. In just such a place as this the wayfaring life of England was for hundreds of years at full tide. The present bridge, old as it is, had many predecessors, for, as we have seen, even before the Norman came the village was known as the "place of passage." Briton, Roman, Saxon, and Norman crossed the river here. On the height above where the present ancient church and inn now stand there stood a more ancient church, and in all probability a more ancient hostelry. Within a fortnight or so this charming little old-fashioned spot will be invaded by the destroyer. The Old Bull is doomed; its quaint and lowly front with its long windows and its pleasant outside seats will be razed to the ground to make way for a new and, no doubt, much smarter and more convenient public-house. Another bit of old England will have vanished.

Men Who Design.

No. 6.

MR. HEYWOOD SUMNER.

FEW of the artistic movements of our time have been more remarkable or more satisfactory than that which is concerned with the reform of English Decorative Art; and never probably has the level of achievement in this branch been higher in this country than at the present time. With this great movement the subject of the present sketch, Mr. Heywood Sumner, has from its inception been closely identified, and, as one of the founders of the Arts and Crafts Society, is entitled to a full share of the recognition which has slowly but surely come to the work of the English School of Applied Art. The strength of this School, and the best guarantee for its permanence, lie perhaps in the fact that it consists, not of disciples grouped round a great master, but of a company of artists of varied individuality and talent united by loyalty to a common ideal, and by faith in a definite and consistent theory of execution.

To say that Mr. Sumner is an artist is to say that he is an idealist. To praise him in print because his ideals are of the loftiest order, because he is uncompromising in pursuing them, or because he permits himself no pattering with his artistic conscience, would not only be improper, but offensive. The plain statement must therefore suffice—to say less would be an act of *suppressio veri*.

Originally educated for the law, Mr. Sumner's natural tastes led him to the study of Art, and since the year 1880 he has made his living as an artist. The first branch of Art that occupied his attention was the pictorial, both water-colour and etching. He has long since abandoned the pictorial for the applied Arts, and the motive that led him to do so is



MAGAZINE HEADING: "FOG AND FILTHY AIR." DESIGNED BY HEYWOOD SUMNER.

not only exemplary in itself, but admirably characteristic of the serious view that Mr. Sumner takes of the mission of Art, and of the duty of those who follow it. At the back of all his work as a pictorial artist was the feeling that Art is the handmaid of man, intended for purposes of social service and the fulfilment of human requirement; and it was the desire to come to close grip with definite human requirement that first led him to take up the applied Arts. Mr. Sumner is convinced of the infinite value to the artist of having some definite problem to solve on given lines; he is fascinated by the restrictions and the possibilities that human requirement brings as it comes along, the delight of combining in the closest union and in the fullest measure the great twin factors of use and beauty. Whether it be for the needs of common daily life or for religious worship the purpose of the work must be always plain to see; its conditions adequately fulfilled, its possibilities of beauty grasped and utilised to the full. In this respect Mr. Sumner endeavours to follow the example of the great craftsmen of the fifteenth and sixteenth centuries, whose work he admires so much. They fired no shots in the air, nor drew bows at a venture, but carefully mastered the human needs of their time, and then marvellously met them.

Mr. Sumner is distinctly one of those artists who have made their public come to them, instead of going to their public. As has been already hinted, his artistic integrity is incorruptible. He believes that it is the artist's business to get people to do what he wants, not to do what they want. While he values clients who know what they *think* they want—and clients do not always do that—his view is that the artist should always give them what they *ought* to want, that is, that an artist should lead his public and endeavour to "go one better" than they require or ask. Consequently, though clients may get what they like, they do not get what they expect. And herein is to be found the great distinction that marks the artist from the tradesman, i.e., that the one places Art before remuneration, and the other reverses the order. The tradesman, who gets a commission, asks himself: "How little can I do for this payment?" The artist says rather: "Here is a chance to put in some good work." The tradesman supplies exactly what his customer asks for, therefore his work never has the air of being *forced upon the public*; the artist, on the contrary, cuts through the cake of custom to give what he knows to be best, without expecting that his client will be able to tell him what that is.

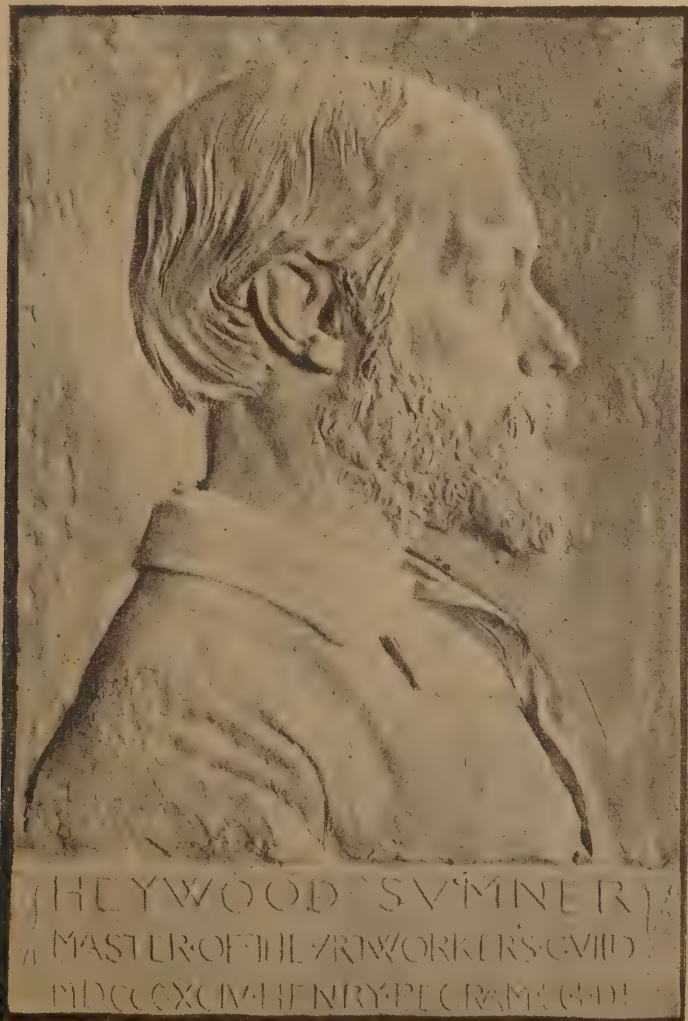
Though the range of Mr. Sumner's work is fairly well represented by our illustrations, yet from their very nature black and white reproductions can often serve for little more than to show the existence of something that should be worth examining in the original. This is especially the case with the reproductions of the sgraffito work at All Saints Church, Ennismore Gardens, and St. Agatha's, Portsmouth, the chapel of the Winchester College Mission. A scheme of colour decoration seen without its colour is painfully misleading and inadequate, and the reader must therefore suspend his judgment until he has seen the substance of which the reproduction is the shadow. Concerning the beautiful and long-neglected Art of sgraffito decoration we cannot do better than quote the following remarks by Mr. Sumner from a booklet published in connection with the work at All Saints Church:—"The wall decoration that goes by the name of sgraffito is produced by laying a thin coat of fine white cement over a ground of cement mixed with colour, and then cutting away the white upper surface, in accordance with the design, so as to reveal the ground of colour beneath.

"Like fresco, each day's work must be calculated beforehand, as the cement sets hard in a few hours; accordingly the cutting of the design and the cleaning up of the colour ground laid bare must be done before the process of setting has advanced.

"The Art of Sgraffito was much practised in Italy during the sixteenth century. It was specially revived by an artist named Morto da Feltri, who appears to have re-discovered the method, in the excavation of ancient Roman antiquities undertaken by the Medici.

"In England it was used in the reign of Henry VIII., but seems to have been forgotten till about thirty years ago, when it was specially revived by the late F. W. Moody at South Kensington, and since then there has been a considerable amount of this work done in England."

All Saints Church is built in the style of the North Italian Basilica, and was originally designed by Mr. Vulliamy in 1849, though it has been greatly altered within the last ten years, and a new west front added, under the





WALL DECORATION AT ALL SAINTS, ENNISMORE GARDENS. EXECUTED BY HEYWOOD SUMNER.
C. HARRISON TOWNSEND, ARCHITECT.

direction of Mr. C. Harrison Townsend. A building in this style is but half complete without a rich and noble scheme of interior decoration; it is the jewel to which the fabric forms the casket. This is the work which Mr. Sumner has most happily begun in a spirit of dignified and restrained design, tempered with rich and sonorous colour, well befitting a place of worship. So far he has completed the east wall over the chancel arch, and the walls of the north and south arches next to the chancel. It is a work the full effect of which cannot be realised until it is complete, but there is quite enough to bear out fully the claim that it is a "new and most valuable departure in church decoration." One eagerly looks forward to the time—probably about a year—when it will be complete, and it will be possible to go to examine the finished work. Congratulations are due both to the artist for the promise shown by what he has already achieved, and also to those responsible for the commission, for the sound artistic judgment and discrimination manifested. It should be added that the central figure over the chancel arch is set in glass mosaic, and the border of the oval that contains the figure consists of a double row of large concave, mother-of-pearl shells, a rather original form of wall decoration. The effect of the light upon these is very curious, especially at night, the figure appearing to be surrounded by a soft luminous halo that seems almost magical. Mr. Sumner's treatment of Prior's glass in the windows must also be mentioned. He has aimed at bringing out the silky qualities of the material, using pieces of coloured glass (not painted), each selected with the utmost care and trouble for the particular place where it was required. He has arranged these in the mosaic manner, in lead lines. The charming accidents that occur in the glass are worked in and made the happiest use of with admirable judgment, and the result is that these windows give an altogether richer and more brilliant result than ordinary painted glass.

As specimens of Mr. Sumner's wall papers, we reproduce the "Fig and Olive," the "Flowery Trellis," and the "Oak, Ash, and Bonnie Ivy Tree," all designed for Messrs. Jeffreys. The latter is a staircase paper, so arranged that it can either be hung straight or drop with each step.

Our illustrations, "St. George and the Dragon" and "Work," are two of the Fitzroy pictures, a series of large prints, some chromolithographed, others coloured by hand, intended for schools, mission-rooms, hospitals, and such-like places of meeting where the walls are barely furnished. This undertaking, of which Mr. Sumner is director, has been a striking success, both artistically and com-

mercially. Associated with Mr. Sumner in the enterprise are C. W. Whall, Selwyn Inage, Louis Davis, and C. M. Gere. In a statement upon the aims of the Fitzroy Pictures, Mr. Sumner writes:—"We think that the schoolroom—the schoolroom of the rich as well as of the poor—should be recognised as a fair field for connecting Art with daily life, and that when there is a desire for simple, vital art on school walls, there will arise a desire that our other public modern buildings should be more worthily and expressively adorned. Thus our ultimate aim touches on the large and intricate question of the spectacle of modern daily life, which has been shaped for so long by men of commerce and men of science." The design "Work" which we reproduce is rather remarkable for the courage shown in attacking artistically a forbidding subject, as well as for the skill with which Mr. Sumner has arranged those terrible parallel railway lines.

We also reproduce three headings designed by Mr. Sumner for Messrs. Macmillan, and a panel portrait of the artist by Mr. Henry Pegram, being a cast of a clay relief intended to be cast in bronze.

LISKEARD CHURCH TOWER.

TO BE RESTORED OR REBUILT?

THE Chancellor of the Diocese of Truro (Mr. Robert Maclean Paul) recently held a Court at the Town Hall, Liskeard, to receive a petition from the vicar and churchwardens of Liskeard for a faculty "to take down and rebuild the present tower, and to erect a choir vestry." The Chancellor was accompanied by Mr. C. E. Ponting, F.S.A., of Marlborough, Wilts, diocesan surveyor for the Dioceses of Salisbury and Bristol, who sat with him as assessor. Mr. Borlase Childs, in presenting the case for the petitioners, explained that the application for a faculty for taking down and rebuilding the tower of the Parish Church was made in open Court, and without opposition, by the vicar and churchwardens of Liskeard. Recapitulating the facts of the case, covering a period of more than twenty



WALL DECORATION AT ALL SAINTS. EXECUTED BY HEYWOOD SUMNER.
C. HARRISON TOWNSEND, ARCHITECT.

years, Mr. Childs explained that in 1876 a movement was set on foot by the vestry for the restoration of the Parish Church. Mr. Richard Coad, of London (who was in the office of Sir Gilbert Scott, one of the best-known ecclesiastical architects of the day), was the architect employed. One of the first points of the inquiry was as to what should be done with the ancient tower, and Mr. Coad reported that for an expenditure of about £200 it could be restored. At that time, however, it was impossible to know the actual condition of the tower, but when the roof of the church was taken off it was found that the tower was of a most defective character, and Mr. Coad then reported that the foundations were so very faulty—in fact, more than faulty—and the damage so very extensive as to render any attempt at

RESTORATION A HOPELESS TASK,

and Mr. T. Lang, the contractor, was directed to carry out temporary work, with the view of rebuilding the tower at a later date. The cost of rebuilding was estimated at £3000. In 1890 a lady of Liskeard died, leaving by her will a legacy of £1000 to be applied conditionally to the erection of a new tower. In 1894 the vestry appointed a committee to inquire into the matter and decide what should be done. There were no prejudged opinions at all as to whether the tower should be taken down or whether it should be restored. The committee thought it right to consider the question of rebuilding the tower, if rebuilding was necessary; because it must be remembered that application would undoubtedly have been made for a faculty, if deemed advisable, as long ago as 1878 if the necessary funds had then been forthcoming. But at that time there was a lack of money, and accordingly the question had to stand over. Miss Pedler's legacy gave an impetus to the committee, more especially owing to the fact that there was a condition which indicated that unless the tower was rebuilt, and the sum of £2000 raised within ten years, the money would go to Truro Cathedral. He wished to emphasise most strongly that, so far as the petitioners were concerned, it was in no sense whatever a fight for £1000 between Liskeard and Truro, which would not be worthy of the town or its associations, but the petitioners felt very strongly, indeed, that if the tower could not be restored and rebuilding was a necessity, they would be guilty of a grave wrong if they did not take steps to secure for Liskeard what was Miss Pedler's first thought—£1000 towards the erection of a new tower. The committee then called in Mr. G. H. Fellowes Prynne, architect, of London, to inspect the tower, draw up a report, and advise it what to do. Mr. Childs read Mr. Prynne's report of April 4th, 1896, in which he stated that while the tower was very dilapidated, "it is perfectly possible to repair and restore it in a satisfactory manner" for £800, including the rehanging of the bells. Having described the various defects, and the method of renovation, Mr. Prynne concluded:—"With such restoration and repairs, I believe the present tower of Liskeard Church could be strengthened sufficiently to last for many generations. The one thing, however, to be most careful about is that the archaeological features are in no way injured. The repairs can be well done without any such injury, and one of the most interesting old towers in Cornwall preserved for many years to come." Upon receiving this report, however, the committee felt that no mere work of restoration would be satisfactory, and came to the conclusion, rightly or wrongly, to make an effort to raise the necessary money for building a new tower, at the same time treating with the utmost reverence and care every single stone which could be looked upon as a point of interest in the old tower—in fact, building a new tower which would re-embodify, as far as possible,

ALL THE ARCHEOLOGICAL FEATURES

of the old Norman tower. The next step was to advertise for plans, introducing, as far as possible, the architectural features of the present tower consistently with the character of the church, and, in response, there were no fewer than twenty-five competitors. The committee called in Mr. Sedding, architect, of

Plymouth, to advise it in the task of selection, and after careful consideration the premium was awarded to one of the designs sent in under the pseudonym "Moorstone." It was naturally a source of gratification to the committee to find that "Moorstone" was Mr. John Sansom, of Liskeard, who was associated with Mr. Coad twenty years ago in the restoration of the church, who had in his mind ideas of what the tower should be, and whose design was really a labour of love. Mr. Sansom's plans introduced into the proposed new tower every stone and bit of old work which, in his judgment, was capable of reproduction. In order that the committee might be still further satisfied in the matter, it asked Mr. Sedding to give his independent opinion with regard to the re-erection, restoration, or entire rebuilding of the present tower. Mr. Childs proceeded to read Mr. Sedding's supplementary report dated January 29th. Having described the present state of the existing tower, Mr. Sedding continued:—"There can be no doubt whatever that the present structure is in a precarious condition, and should be promptly prevented from further dislocation, which would cause the fabric to collapse. It is, I understand, the desire of the committee to heighten the tower some twenty feet, as suggested by the successful competitor. This cannot be done with safety without strengthening the substructure, which is now unable to support itself. Any method far short of rebuilding would be but temporary, for the tower needs a foundation. Underpinning, under the circumstances, I should not recommend, for it would be attended with considerable danger. The only alternative, and, in the end, the most conservative method, would be to rebuild, carefully preserving and marking the old materials (as Mr. Pearson is doing at Peterboro') so that the present tower may be re-erected, as far as it can be done, any new walling stone being in harmony with the old; the 17th century granite facing to be used in the lowest part, with the old plinths. I am quite sure you could have no better man than your chosen architect to carry out this most important work, which, if carried out on these lines, will be one of the most interesting pieces of conservative craftsmanship executed in this county." On that report, continued Mr. Childs, if there was any thought in anybody's mind as to the possibility of the restoration of the present tower, that hope vanished. There seemed but one course open to the committee. It felt that it owed a duty to posterity, and that no work that was not of a permanent character should be undertaken. Accordingly, it set to work



THE "FIG AND OLIVE" STAIRCASE PAPER. DESIGNED BY
HEYWOOD SUMNER.

and made an application for a faculty, which the Chancellor had said he did not see his way to grant except upon certain conditions. It was well, he admitted, that there was a power that could stop work upon our ecclesiastical buildings which some people might wish to carry out. If it was left to the wills of a few irresponsible persons they might even have their cathedrals pulled down, and it was well there was a power to restrain them. But,



THE "OAK, ASH, AND BONNIE IVY TREE." DESIGNED BY
HEYWOOD SUMNER.

on behalf of the petitioners, he asked the Chancellor to exercise the power vested in him to give them a faculty, because they were satisfied, from expert evidence, that the present tower

COULD NOT BE RESTORED

in any way worthily of the town, and that it must be taken down, but, as he had said, not with a view of destroying the interesting features of the fabric, but of carrying out a scheme of "conservative craftsmanship," such as Mr. Sedding recommended. Continuing, Mr. Childs said if the Royal Institute of British Architects had an earnest desire to preserve

an ancient landmark its proper course would have been to send down one of its members to make a careful examination, and then oppose the petition. But it had not the pluck to do that. What it had to say, therefore, was not worth discussing, except that it was an unjust attempt to influence public opinion in Cornwall.—Mr. T. Lang, a builder of experience, and head of the firm of Lang and Sons, contractors, said in 1876 the vestry decided to restore the parish church, and he contracted to carry out the work. A part of the work of restoration was to take off the roof of the church, which was accomplished in 1878. He made a thorough examination of the tower, which he found to be in a very defective condition. He had pits sunk below the tower, chiefly on the south-west side, and found that about 4ft. below the surface they had actually unbottomed the tower. He remarked upon the dangerous character of the structure, and ordered the pits to be filled in with concrete. There was no masonry at all in the foundations of the tower.—Mr. Edmund Sedding, architect, of Plymouth, was then examined. He said he was familiar with Cornish Architecture. He was called in by the tower committee to advise in the selection of designs for a new tower, and after the utmost care had been taken, the premium was given to the design signed "Moorstone," prepared by Mr. Sansom. He recommended the adoption of a compromise between "Moorstone's" main design and his alternative scheme, that the height of the tower should not exceed 80ft., that all the old features of the present tower be reused, of course including the old tower arch—in short, that a scheme of rebuilding be aimed at rather than the demolition of the existing structure. Subsequently he carefully examined the tower, and presented a supplementary report, which he still adhered to, although a recent inspection had convinced him that the foundations were not so strong as he thought they were.—The

Chancellor intimated that he would deliver a written judgment.

A new hotel is to be erected on the front at Sheringham. It will cost £30,000, and be completed for the 1898 season. It will have 101 bedrooms.

The death took place within the past few days at his residence, Copeland Street, Stoke, of Mr. Edwin Penn, a well-known architect in North Staffordshire.

Mr. C. T. Ritchie, M.P., has laid the foundation-stone of the Passmore Edwards Public Library, which is to be erected at 236, Cable Street, St. George's-in-the-East.

DEVONPORT'S DOCKS.

A GIGANTIC EXTENSION SCHEME.

THE Keyham extension works, when complete, will place Devonport in the position of being the finest naval arsenal in the world. Magnificent docks and basins, capable of accommodating the largest battleship afloat, will have been constructed by that time. But a lot of work must be accomplished before that period arrives, and the development and progress of the undertaking will be watched with unusual interest during the interim. As is well-known, the work is being carried out by Sir John Jackson, who, it may be mentioned, is engaged at the present time in new harbour works at Dover, and many other big contracts in this country. The works at Dover were commenced some five years ago, and are now just approaching completion. The Keyham extension was started in January, 1896, and provision is to be made for a large closed basin, which is to cover an area of 35½ acres, a tidal basin, and four graving docks, with a deep loch entrance, allowing ships to enter at all states of the tide. The closed basin is 1550ft. by 1000ft., the tidal basin 1000ft. by 500ft. The whole of the great area necessary for these works seaward has had to be enclosed by a cofferdam of exceptional length and strength.

EXTRAORDINARY LENGTHS OF TIMBER

are necessary, owing to the great depth of mud underlying the site. The cofferdam is composed of piles running from 65ft. to 85ft. long, driven in two rows 5ft. apart, and filled with clay puddle. The timber necessary for this important work has been specially brought over from Vancouver. It is Oregon pine, and has all been brought around Cape Horn. The first vessel with this timber arrived in January last, and nine other cargoes have since followed. Some 13,000 piles alone have been driven in the dam and stagings in connection therewith. When this work is completed the enclosed area now covered by the waters of the Hamoaze will be pumped out, and the great bulk of excavation will be tackled. The vast character of this section of the work will be understood when it is stated that some 10,000,000 tons of mud will be removed from the area and conveyed out to sea. For this purpose six of the largest steam hopper barges are now being built on the Clyde, and very shortly two exceptionally powerful tugs will arrive at Devonport for working this fleet. The preliminary workshops, &c., which the contractor has laid out, have all been schemed with a view to making the maximum progress that a very large quantity of plant and forethought can bring about, once the cofferdam is closed and the area drained. Complete mechanical engineering shops, with foundry and forges, have been erected to enable the contractor to repair and renew the tremendous quantity of plant required with the least delay and inconvenience. The whole undertaking is estimated to cost three millions sterling, and an idea of the value of the plant now on the ground can be gained when it is stated that no less than 80 steam boilers are constantly at work, a large number of locomotives, 50 steam cranes, in addition to pile drivers, steam navvies, steam winches, nine gas engines for driving the repairing shops, and concrete mixing plant, not to mention a fleet of barges bringing

GRAVEL FOR CONCRETE, LIMESTONE, &c.

Very powerful pumping machinery has also been provided, but owing to the almost entire absence of water so far this machinery has had little work to do. But this can hardly be expected to continue. Substantial progress has so far been made with the work, and, judging by the present rate, there seems very little doubt but that the whole undertaking will be carried out well within the contract time. At present some 1500 men are employed on the extension, exclusive of those engaged at the quarries at Oreston, and a couple of hundred men at Weston Mill, where Sir John Jackson is erecting two hundred houses to accommodate his workmen. The staff of workmen will probably be doubled by next

year. By night as well as by day the work is being pushed forward, and the electric light is brought into use by night, no less than fifty arc lamps and upwards of 1000 incandescent lamps, besides a large number of Well's well-known portable lamps, being brought into requisition. The temporary timber alone represents approximately £150,000. These large extension works have been designed and are being carried out under Major Pilkington, C.B., R.E., as engineer in chief, and he is represented on the works by Mr. Whately Eliot, M.I.C.E. Sir John Jackson's chief agent is Mr. G. H. Scott.

TECHNICAL EDUCATION IN THE EAST END.

IT was a happy thought, indeed, which prompted Sir Walter Besant to write "All Sorts and Conditions of Men," the justification for which is amply evidenced year after year at the People's Palace in the Mile End Road, and was most powerfully demonstrated a few evenings since, when the students' annual conversazione was held and was participated in by some 3500 persons, whose enjoyment was ministered to by Mr. W. E. Steadman, L.C.C., Mr. J. L. S. Hatton, the Director of Studies, Mr. C. E. Osborn, the secretary, and others. The programme was arranged and carried out under the direction of Sir John H. Johnson, chairman and treasurer of this East London Technical College, with which, by the way, has been amalgamated the old Bow and Bromley Institute. Besides chemical and telegraphic demonstrations, wood-carving and book-sewing were shown in actual operation, and these, together with the microscopical, engineering, and joinery sections, attracted considerable attention. The Art school, and engineering, chemical, electrical, and physical laboratories were thrown open for the inspection of visitors, and demonstrations were given in the Röntgen rays. Leaving the lighter for the more serious objects of this very admirable institution, we would remark upon the excellent quality of the work executed in the joinery section, as evidenced by the specimens in view, some of which were executed by very youthful students. Among the work which we particularly examined were some king posts for roofs, doors, and panels, and some inlay work, much of which is very neat and well executed, the operators having steered

CLEAR OF OVER-ELABORATION.

In the wood carving division were several excellent specimens of the handicraft, the workmen in which had displayed some very welcome departures from the usual designs. One panel, a quartrefoil, with a floral design, executed by a lad of sixteen, gained a London County Council scholarship, and is decidedly promising. Much satisfaction was expressed by visitors at the complete manner in which the Art school and the various laboratories and schools were fitted up for both the day and evening classes, and there can be no question but that the educational and social influence of the People's Palace is a large power for good in the East End of London. Coming now to the Calendar which has been issued for the 1897-8 session, whose work may be said to have been inaugurated by the conversazione above referred to, it may be cited as especially worthy of imitation in other industrial centres, that, in addition to the usual subjects provided by



THE FLOWERY TRELLIS WALL PAPER. DESIGNED BY HEYWOOD SUMNER.
BY PERMISSION OF JEFFREYS AND CO.

polytechnics and such-like educational institutions, there are trade classes (in which People's Palace trade certificates are awarded) held in plumbing, in which those portions of the various science subjects with which the trade is connected are studied and explained; in tailors' cutting, in which the teaching is individual as far as possible, the instruction practical, and as simply put before the student as the subject permits; in carpentry, joinery, and cabinet-making, in which the students are taught to work in the shop to detailed drawings; in brass work and scientific instrument making, in which particular attention is given to the making and use of electrical apparatus; in bookbinding, the workman being taken through the complete course of binding books and music, beside cleaning and restoring, map and photograph mounting, and finishing in all styles; in house painting, decorating, and sign writing and graining—a very necessary course, in a knowledge of which many otherwise efficient workmen are lamentably deficient, and in which instruction is given in the principles of letter writing, including different styles and ornamental lettering, gilding, shading, &c., together with graining in imitation of woods and marbles; in pattern making, and in practical smith's work. It will be seen from

this brief synopsis that the workers of the East End are well provided for in many of the trades with which they are the more immediately associated, a remark which also applies to the women workers, whose subjects do not come within the purview of this journal. Referring to the future, it may be mentioned here that, following on a very successful exhibition of Art which has been recently closed, on October 25th a Diamond Jubilee exhibition of trades and inventions will be opened, and so remaining till January of next year. This exhibition, which is being promoted by Mr. Hills, of the Thames Iron Works, will especially appeal to East End workers, as it will be largely representative of those industries therein pursued, the exhibition promising to be particularly strong in all that pertains to shipbuilding and ship's work, while

INVENTIONS.

by working men will also be very largely to the fore, Mr. Osborn having received many such already, several of which are decidedly clever. Among the professions and trades which are to find a place in the exhibition are Architecture, building, joinery, shipbuilding and engineering, electrical and other lighting, textiles and clothing, food and confectionery, toys, fancy goods, and gold and silverwork, clocks and jewellery, pottery, glass, &c.; furniture and decoration, printing, publishing, bookbinding, &c.; musical instruments, boots, shoes, and leather goods; brush, basket, and cane work, and brass and metal work, cutlery, and ironwork. We purpose dealing with the Exhibition in a future issue, and in the meantime we would congratulate the executive of the People's Palace and college and schools upon the good work it is accomplishing among the toilers of the East End.

At Barmouth a sheriff's officer took possession of the offices of the District Council for a claim of £1800 made by the contractors of the drainage works.



MAGAZINE HEADING. "CATCH ME WHO CAN." BY HEYWOOD SUMNER.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

October 13th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

WE are glad to be able to announce the fact that the scheme for the decoration of the interior of the Royal Exchange is rapidly approaching completion. The ninth picture—that presented by Sir Samuel Montagu, Bart., representing Charles I. demanding the surrender of the five members at the Guildhall—is almost complete, and will be unveiled by the Lord Mayor very shortly. It is from from the brush of Mr. S. J. Solomons, A.R.A., whose pictures have from time to time proved valuable acquisitions to Art loan exhibitions at the Guildhall Gallery. Mr. Deputy Sayer hopes to be able to induce another of the large and wealthy livery guilds to contribute to the series of panel paintings.

WE understand that the new wing of the Admiralty buildings, the erection of which is being rapidly pushed forward, will be devoted to the medical and other branches of the department, which at the present time are scattered in all directions over Spring Gardens and Whitehall. The new block, which adjoins the First Lord's garden, will, when completed, connect the old and the new Admiralty buildings. Preparations are also now being made for clearing the Carrington House site in Whitehall, upon which the new War Office is to be erected, and when these important buildings are completed it is probable that they will be connected with the Admiralty by a subway beneath the street.

It needed a great fire to clear away the disease-smitten rookeries of ancient London. It needed two or three visitations of cholera to start London sanitation. And it looks as if London just now needs a typhoid epidemic to take her water supply firmly and once for all in hand. The Maidstone epidemic, which most of the medical authorities attribute to polluted water, is still spreading rapidly. Neither in London nor in any other town that is, was, or shall be, will profit-mongers in water take more precautions against disease than they are forced to.

A RESIDENT in Beechdale Road, Brixton, writes:—"The street in which I reside abuts on the main thoroughfare of Brixton Hill, and contains nearly 100 houses, all of which have been occupied as fast as they were constructed. The road, from a building point of view, was completed in the spring of last year, and I indulged hopes that the Vestry would promptly take it over with a view to its being duly made up and paved. However, in such matters the parochial mind moves slowly, and it was not until the following November that the various owners received formal notices calling upon them to pay their respective shares of the estimated charges. Many of them, to facilitate matters, paid in full, others, of a less sanguine turn of mind, in part; and in the spring of the present year were duly hauled before the magistrate at Lambeth Police Court and ordered to disburse the balance and costs forthwith. The financial outlook, therefore, especially from a Vestry

point of view, may be considered satisfactory, but there the matter has rested, and although we are now approaching the end of the year, nothing in the way of making-up the road has been attempted.

It is not everyone in the Profession, perhaps, who knows that the closing years of Wren's work at St. Paul's were darkened by wrongful and insulting treatment. There had been a Commission appointed to superintend the progress of the works. An idea took possession of their minds that Wren wanted the work prolonged as much as possible in order that he might continue to enjoy his sumptuous salary (£200 a year!) as architect. Accordingly, three years before the close of the seventeenth century, a clause had been inserted in an Act of Parliament which had authorised them to suspend payment of one half his salary till the work was finished. But, says a writer in "Cathedral Churches," disputes about money were not all; the Commissioners continued to meddle with the work, and to thwart the architect. Contrary to his strongly expressed wishes, they cooped up the cathedral within an enclosure consisting of a stone wall surmounted by a heavy cast-iron railing. They insisted upon crowning the side walls of the cathedral with a balustrade, since this, to quote Wren's words, "was expected by persons of little skill in architecture," and by ladies, who "think nothing well without an edging." At last, as the result of a miserable Court intrigue, they obtained from George I. the dismissal of the illustrious architect from his office of Surveyor of Public Works. Wren, then in his eighty-sixth year, but in full possession of his faculties, bore this ill-treatment with equanimity, retired to his house at Hampton Court, and resumed his studies in philosophy and theology, until, four years later, he passed quietly away from this world.

SHOREDITCH is not to have a monopoly of the economical arrangement by which the furnaces at the dust destructor generate steam for the electric lighting engines. As a result of the investigations undertaken in many of the principal towns by the special committee appointed by the Fulham Vestry to consider the best means of disposing of the dust and refuse of the parish, it has been determined to follow the plan adopted in Shoreditch. At first provision is only to be made in Fulham for the destruction of one-half of the parish refuse. It is probable that the same method will be adopted at Brentford and in Newington.

Two more blocks of buildings are about to be commenced on the Boundary Street scheme of the London County Council. Tenders have been received for setting up a bandstand on the summit of the terraced garden, and for building the flights of steps leading up to it. There is a further large amount of work for which plans have long been ready, but which the Committee have delayed for further consideration. Since this scheme was originally drawn up there has been a considerable rise in the price of labour and material, and the Committee is now revising its calculations. The transformation thus far effected in this locality is marvellous. What was perhaps the vilest rookery in all London has become one of the brightest and pleasantest of working-class neighbourhoods.

THE City of Pittsburg, U.S.A., will in time, thanks to the generosity of one of its inhabitants, possess probably the finest collection of modern Art in the whole world. A fund is now available which will admit of £10,000 a year being spent upon pictures. The programme which has been adopted is both elaborate and costly. A deputation will visit Europe each year and select pictures for an exhibition to be held at Pittsburg every autumn, the first opening next month. From this exhibition a jury of two artists of note from each country represented will select pictures to the amount of money at their disposal, the jury visiting Pittsburg and having all their expenses paid. The two British artists who have been asked to form the English delegation at the first exhibition are Mr.

Orchardson and Mr. Swan; but the former has had to decline the honour. The works sent from Great Britain to this opening show are by no means representative or worthy of the school—a remarkable fact, considering that such outlets as this for the disposal of pictures should be greedily grasped at, especially as purchases will certainly not be confined to those for the Trust, and an acquisition by the Trust would probably mean the artist being adopted by the American public.

A CASE which recently came before the Chancellor of the Diocese of York is worthy of note. The vicar of South Cave, before he had been in the parish a couple of years, proceeded to erect a carved oak communion table and reredos in the church. The former was in substitution of one which had been designed by Mr. Pearson, R.A., when the chancel was recently restored. The latter, which included a cross, was arranged so as to partly obscure an east window of fine old glass which had been brought from Holland by one of the ancestors of the lay rector and patron of the living—a lady who had presented the parson in question. The Chancellor severely commented on his conduct, and condemned him in costs.

A CORRESPONDENT challenges the vicar of Folkestone to give proof that the bones preserved in his Parish Church, and which have been recently exhibited there, are those of the late St. Eanswythe, as claimed. Mr. Harry Hems has come to the rescue. He writes:—"As I was practically the person who found them, perhaps it may be as well to record what little I know on the subject. In June, 1885, members of my staff were engaged in arcing the sanctuary of the church in question (SS. Mary and Eanswythe, Folkestone), with polished alabaster and costly marbles. To further this work, on Wednesday morning, the 17th of the month, we were constrained to remove some small portion of the original Norman, or, may be, early thirteenth century, north wall within the sanctuary in question. This was being done, under my personal supervision, as tenderly as possible, when suddenly we espied, deeply embedded in the rubble, a leaden casket. Upon careful removal it was seen to measure 16in. long, 10in. wide, and 6in. deep. Chastely ornamented with geometrical and diapered enrichment, it had fastenings of lead encircling it to keep the lid securely closed. Within we found some female bones, consisting, in the main, of the upper portion of a skull, two thigh bones, some finger bones, and a beautifully white tooth."

"THE 'find' created great interest amongst archaeological circles at the time," Mr. Hems continues, "and was considered by learned antiquarians to be one of the most valuable discoveries of the kind ever made in Kent. Circumstances suggest the bones were the remains of the Saxon Princess Eanswythe, originally buried in the long-ago destroyed Chapel of St. Peter, in the priory she founded in the sixth century on Folkestone's cliff. When the encroaching sea wrecked this priory, the old historian Lombard tells us, the saintly relics of the foundress did not share the fate of the fabric, but were removed to the new building on the site of the present Parish Church. There, close by the altar, they are believed to have rested from that long-ago day, almost undisturbed, until unearthed by myself in the unexpected manner described on a bright and sunny June morning twelve years ago. No doubt they were originally in a handsome shrine. The battered condition in which the leaden box was when we found it was probably due to the fact that during the time of Oliver Cromwell it is recorded many acts of sacrilege were committed in the Parish Church. The shrine of St. Eanswythe fared as badly as the rest; the coffin was probably torn open and rifled of any valuables it contained, and then thrust into its resting-place and built up in the position recorded. In due course we made a handsome reliquary of veined and polished marble, and fixed it on the precise spot where the discovery was made, and therein

the bones and their casket were piously placed, and there they have since continued to remain. We must not overlook the fact that when St. Augustine first came to preach the Gospel in Kent, St. Eanswythe, the little granddaughter of King Ethelbert, who was converted by him, came to Folkestone, leaving behind her the Court and all its fascinations. There, by the seashore, she remained, spending her life in prayer and good works, and at Folkestone she died."

LAND hunger is a malady from which East Finchley is happily free. Its existence would, in fact, be an absolute anomaly, since eligible freehold building sites in that locality are regarded as of such trifling importance as to be scarcely worth looking after. A gentleman of Shepherd's Bush, who claims to be the proprietor of part of this land, strolled up, after a year's absence, to glance at his ancestral estate, and was somewhat surprised to find that it had nearly all been dug away. Peering into the abyss, which was once a building site for a bijou villa, he saw half a dozen men digging with great industry. In his amazement he shouted to them to stop, but they laughed and jeered at him, and said they were entitled to cart away as much of the sand as they liked. The owner of what remained of the freehold called a policeman, who conveyed two of the diggers, by name William Reid and Henry Coleman, both labourers, before the Highgate Magistrate on a charge of illegal excavation. Mr. Forbes, solicitor, who conducted the defence, maintained that this was in reality a kind of No Man's Land, from which people had been accustomed to take sand from time immemorial. A legal discussion ensued, in the course of which doubts arose respecting the freeholder's proprietary rights over the sand taken away, and ultimately the charge was withdrawn on the two men agreeing not to dig any more. By this arrangement the remains of the eligible site will be rescued from total disappearance.

MR. G. FRAMPTON, A.R.A., in an interview in this month's *Idler*, observes:—"Every memorial should, to my mind, not be a carved statue of the man himself, but it should embody his life and chief characteristics. Myself, I always endeavoured to reproduce the man's actual personality." "This," Mr. Frampton observes, "I see exemplified in the memorial Mr. Frampton is just completing of Mr. Charles Mitchell, which is not wanting in dignity or individuality. It represents all the characteristics, aims, and ambitions of the subject. His Profession is denoted by the two ships, his aims by the orange trees which branches upward, whilst on either side are representations of the church and the tower and hall of the Aberdeen University he built, surrounded below by emblematical figures denoting the man's personal greatness—Charity, Truth, Energy, and Science, and above all towers a figure with an olive-branch."

THERE can be no greater proof of an artistic advance "all along the line" than the greatly increased attention paid to the applied Arts. At the last Spring Exhibition in the Leeds Public Art Gallery considerable space was given up to objects coming under this description, and it is satisfactory to know that it is hoped to extend this section next spring. Wood carving is one of the most generally practised of the crafts, but often with more zeal than knowledge. For those who want to become acquainted with the technicalities, a handbook by Messrs. H. Rogers and J. W. Darnborough will prove useful. Of course, practical demonstration is the best form of instruction in a craft like this, but "The R. D. Scheme of Wood Carving: Elementary Course" (Simpkin, Marshall and Co.) is one of the most business-like text-books we have ever seen. Without wasting time upon historical or æsthetic discussions which, however interesting, would be irrelevant for the present purpose, it goes at once into a practical discussion of the half-dozen tools used in the course, and the important detail of how to sharpen them. Then we have a series of

twelve exercises, in a graduated scale of difficulty, and introducing the six tools in order, so that the student may master the use of each before proceeding to another.

THE London County Council has adopted a motion instructing the Parliamentary Committee "to take the necessary steps to insert a clause in one of the Council's Bills empowering the Council to purchase or contribute towards the cost of purchasing or otherwise incur expenditure in connection with the preservation of buildings and places of historic or architectural interest."

WITH no further formality than a private reception, there was recently opened the splendidly equipped laboratory which the Crown Office of Works has built for the important analytical work required equally by the Inland Revenue Board and the Crown Contract Department. Hitherto these labours have been carried on in very unsuitable surroundings at Somerset House. While the laboratory has required better facilities, the space occupied there has been sorely needed for other uses, and in 1895 Professor Thorpe, director in chief in this department, was charged with the erection of a suitable building. A convenient site in Clement's Inn Passage, near to the Law Courts and King's College Hospital, was secured, and under Professor Thorpe's constant supervision the Office of Works has reared a simple but dignified pile, in which every possible appliance that science and delicate machinery can afford to analytical inquiry is to be found. The entire cost is estimated to be somewhere between £25,000 and £30,000 and the staff will be about sixty, while provision is also made for the assistance of the students in this branch of science at South Kensington. The enterprise is an especially interesting one when it is borne in mind that the new laboratory is the first institution of the kind built by the State in this or any other country, and if not heralded by any flourish of trumpets, or ceremonial opening, it only goes to show how quietly and unostentatiously the British Government carries out its most notable achievements.

THE work of students at the Art Schools of the London Polytechnics, both in artistic quality and skilful execution, has made a vast improvement lately. Recently the authorities of the South Kensington Museum were so pleased with the work of one student, only sixteen years of age, that they purchased it for the National Collection. The work in question was an original panel designed and executed in wood-stains, by Mr. F. Wilkins, a student of the Art School of the South-West London Polytechnic.

MR. ASHLEY HONEY, of 93, Brixton Road, writes:—"There is a class of historical relics which cost nothing to preserve, but which are apt to suffer from the acts of the unthinking, and cannot be restored. I refer to the sepulchral tumuli which crown the hill tops of our heaths and downs. On visiting recently the four round barrows on the top of Banstead Downs, near Sutton, I found that they had been partially demolished, apparently for the earth and turf. One in particular is covered with human bones which have been disinterred. I feel that it is not seemly that the remains of the ancient dwellers in England—our predecessors, if not our ancestors—should be treated with such scant courtesy."

THE town of Nottingham, which has just been entertaining the Church Congress, is full of interesting memories; but, unfortunately, very few of its old edifices have escaped demolition. There are some old houses round its famous market-place, but they have been refronted and stuccoed till most of their ancient charm has been lost. A number of interesting old houses in the centre of the town have recently been sliced away to make room for the new station of the Great Central Railway. Even the Castle, where the mayoral hospitality is so often dispensed, is ancient only in its site. It stands on a high rock, honeycombed with tunnels and the remains

of secret passages which once communicated with the Castle. It was here that Charles I. first raised his standard in Civil wars. The Castle was, however, taken by the Parliamentary army under Colonel Hutchinson, and an old ale-house under its shadow still bears his name as its sign. The Castle remained in the hands of the Duke of Newcastle, though in the last century the houses in what is now Castle Hill were erected on a portion of its grounds. In the Reform Bill riots of 1832 the Nottingham mob was exceptionally violent, and the Castle was sacked and burnt. It long remained in this condition, but ultimately the site was purchased by the Corporation, who rebuilt a portion of it in something of its former style, and laid out the grounds as a pleasure garden. Some of the blackened beams of the old Castle may still be seen outside. Inside, in happy contrast, is a municipal museum and Art gallery.

How few probably are aware that within a few yards of the Strand stands one of the most interesting of the relics of Roman London—a bath that is 2000 years old, and that is still used for the purpose for which it was built? It is reached, says the *English Illustrated Magazine*, by Strand Lane, a small passage opposite the east end of St. Mary's Church, and a few yards east of Somerset House. Some twenty yards down this alley, on the left hand will be seen a small, unpretentious-looking building, behind a row of iron railings. Descending a few steps, and passing through an inner wooden doorway, recently erected, we shall find ourselves in a narrow vaulted passage; through an arch on our left we enter. Here, in a vaulted chamber some 16ft. in length, 16ft. in height, and 9ft. in width, lit by a single oval window at its western end, is the historic bath which was probably built either in the reign of the Emperor Titus or of Vespasian—nearly 2000 years ago. The bath is sunk in the ground to a depth of 4½ft. Its length is about 13ft. and the width 6ft. At the north-east end within the bath is a small flight of steps, round which the water rushes in—beautifully clear, cool, and pleasant to the taste. Some 26,000 gallons pass through the bath daily, the supply being derived from a perpetual spring, the source of which is believed to be the old Holy Well which gives its name, though not its cleansing quality, to Holywell Street, hard by. A waste-pipe inserted in the bath carries off the overflow of water. On the west end of the bath the old Roman bricks still remain to attest the antiquity of the structure. The other three sides are now lined with the marble that was taken from what was known as the Essex Bath until its destruction in 1893 to make way for the buildings of the Norfolk Hotel. The Essex Bath was built, so some assert, in 1588 by the Earl of Essex. It was a fine marble plunge bath, supplied with water from the Roman Bath by means of a leaden pipe. Nothing of it remains but the marble linings already referred to.

THE superior Jury at the Brussels Exhibition has confirmed the awards made to the following British artists:—*Médaille d'Honneur*, L. Alma-Tadema, R.A.; first-class medals (painting), Frank Dicksee, R.A., E. J. Gregory, A.R.A., Seymour Lucas, A.R.A., H. Herkomer, R.A., Sir J. D. Linton, P.R.I., J. W. Waterhouse, R.A., J. C. Hook, R.A., J. S. Sargent, R.A., E. Onslow Ford, R.A., (sculpture); Second-class medals (painting) W. Q. Orchardson, R.A., S. J. Solomon, A.R.A., J. Aumonier, R.I., G. Clausen, A.R.A., Charles Green, R.I., D. Murray, A.R.A., Mrs. Allingham, R.W.S., R. Macaulay Stevenson, J. Lavery, J. W. North, A.R.A., W. W. Ouless, R.A., J. L. Pearson, R.A. (Architecture), G. Frampton, A.R.A., (sculpture) A. Drury, D. Y. Cameron (engraving). The exhibition authorities have purchased the picture "Apple-blossom and tulips" by Alfred Parsons, A.R.A., for the Grand Lottery.

THE Art Gallery Committee of the Manchester Corporation has passed the following resolution:—"That as, without preventing the adequate exhibition of the permanent collection, it is not possible to give to any

temporary exhibition more than four rooms, a number wholly insufficient for the autumn exhibition as hitherto held, such exhibition be abandoned, and its place taken by temporary exhibitions, open free to the public, as an addition to the permanent collection.' The building now known and used as the City Art Gallery was erected in 1830 for the Royal Manchester Institution, raised by Manchester merchants and other influential residents defraying the cost, which was about £30,000. Annual and occasional exhibitions of works of Art, the Committee goes on to state, were held; the nucleus of a permanent collection of pictures was gradually formed; and in time the annual exhibition of the Manchester Academy of Fine Arts also found a home in the building. In the year 1882, by special Act of Parliament, the governing body of the Royal Institution handed over the building and its contents to the Corporation under certain conditions, which included (a) representation of the Governors on the Art Gallery Committee; (b) the appropriation for twenty years of the sum of £2000 annually out of the city rate, and the profit on exhibitions held in the building, to the purchase of pictures; (c) the reservation to the Governors of certain privileges enjoyed by them. The Act also provided for the alteration and extension of the building, and for its sale and the substitution of other buildings if desirable. The Art Gallery Committee, thus formed, continued the annual and occasional exhibitions, and the annual exhibition of the Manchester Academy continued to be held in the gallery. But, as had been foreseen from the outset, the permanent collection began to encroach upon the space available for the autumn exhibition; and, although by structural alterations three rooms have been added to the galleries since 1882, it has now become impossible to accommodate the autumn exhibition, except at the cost of crowding the permanent collection into little more than half the space needed for its satisfactory exhibition; and every addition to the permanent collection, whether by gift or purchase, will add to the difficulty. The permanent collection is now valued at about £50,000. It is one of the best of its kind out of London, and includes important works by many of the principal English painters."

THE Art Gallery Committee's report continues:—"It is frequently alleged in the press that the earlier exhibitions were better in average quality than the recent ones, but the contrary opinion is also strongly held. Upon this point the Committee must be silent. But this much may be said: Several commanding personalities have been removed from the world of English Art, while others are not producing as much as formerly; and these gaps have not as yet been filled up. Two or three works by these men would make an exhibition popular; and such works are not now available. (e) The decrease in the available space has led to a decrease in the number of exhibits, and quantity, as well as quality, counts for a great deal in the popular estimate. The above are probably the chief causes of the decline in popularity of the exhibition. The facts themselves are suggestive; they are also constantly quoted in the press and by visitors to the Art Gallery. It should be observed, however, that the decline of interest in the autumn exhibition is not in itself considered by the Committee a sufficient reason for its abandonment, but simply a reason for not sacrificing the permanent collection for the autumn exhibition when there is not sufficient accommodation for both. The Art Gallery Committee will be only too glad to continue the autumn exhibition if a new gallery is placed at their disposal for the purpose; and with adequate accommodation the exhibition would doubtless be more successful than in recent years. With a new and well-arranged gallery the Committee would be able not only to offer to the public better collections of oil paintings, but also to do justice to water-colour painting and sculpture, the treatment of which hitherto has inevitably been miserably inadequate. The need for such a new gallery is admitted; but, in view of the financial position of the city, the Committee

do not feel justified themselves in urging the Council to build one. They feel that, under the circumstances, this is a matter in which the public and the Council itself should take the initiative. Assuming, then, that the Committee will have for the next few years only the present gallery at their disposal, they see their way to make the following use of it:— (a) The adequate exhibition of the permanent collection; (b) the annual exhibition of the Manchester Academy of Fine Arts; (c) a small annual exhibition (free) of selected oil paintings; (d) an annual exhibition (free) of selected water-colour drawings. Exhibitions of sculpture, historical exhibitions, black and white exhibitions illustrating foreign schools of Art, and Arts and Crafts exhibitions, would only be possible by giving up the water-colour or the Academy exhibition; and could for the most part, be only very limited in extent. Such a restricted programme as is suggested above will only be possible, however for a few years longer, as the whole of the present gallery will soon be required for the permanent collection. The proposed change would involve increased annual expenditure. The autumn exhibition has more than paid expenses on the average; the profit going to the picture-purchase account. But the free exhibitions now suggested would have to be paid for out of the city rate."

A LARGE and influential meeting of merchants has been held at the London Chamber of Commerce, Eastcheap, for the purpose of petitioning the Commission of Sewers to widen the eastern end of Lower Thames Street, where a daily congestion of traffic exists in connection with Billingsgate Fish Market. For some time past the inhabitants of the ward have been agitating for the widening of the street from Fish Street Hill to Botolph Lane, and the meeting resolved to appoint a deputation to wait upon the Commission of Sewers with a memorial in favour of the widening of the street, the cost of which is estimated at over £100,000. The widening of Upper Thames Street has just been completed at a cost considerably in excess of the above amount.

WEST SMETHWICK PARK of more than fifty acres was presented to the public two years ago by Mr. James T. Chance, J.P., D.L., who bought the land for it, laid it out, and endowed it at a cost of about £25,000, in memory of his long connection with the district. An interesting ceremony took place in the park on Saturday week in the unveiling of a bust of Mr. Chance. The bust, in bronze, is the work of Mr. Hamo Thornycroft, R.A., and the likeness is excellent. The architectural support for the bust, designed by Mr. William Henman, F.R.I.B.A., is a pedimented screen in red brick and terra-cotta, with oval recess to receive the bust, which stands upon an ornamental bracket below which is a bronze inscription tablet. On either side of the central feature there are wing walls curving forward protecting seating of deep buff terra-cotta. The whole structure is mounted upon red Aberdeen granite steps, and being backed up by trees and shrubs, forms a very ornamental addition to the park buildings.

A VERY interesting antiquarian and geological discovery is at present in progress in the Isle of Man. A fortnight ago traces of fossil remains of the extinct great Irish elk (*Megaceros hibernicus*) were discovered in the marl beds in the west of the island by certain members of the Isle of Man Natural History and Antiquarian Society. Since then the ground has been trenched, with the result that the antlers and ribs of a superb specimen of the animal have been laid bare. It is expected that a complete skeleton will be disclosed. Last year the British Association made a grant in aid of the cost of the search.

THE new municipal electricity supply works erected by the vestry of Hammersmith were formally brought into operation last week. The distribution of electricity is arranged on the high pressure alternating current system. The current is generated at the central supply

station in Fulham Palace Road, at a pressure of 2000 volts, and distributed to six substations, where it is transformed to a low pressure current of 110 volts. There are in all four dynamos, three of the Ferranti disc type, and one of Ferranti's revolving field magnet type. The former are each driven by a vertical compound engine made by Messrs. MacLaren, of Leeds, the alternator being placed between the high and low pressure cylinders. The speed is about 150 revolutions a minute, and each dynamo can light 4000 eight-candle power lamps. Steam is supplied by two Badcock and Wilcox water-tube boilers, a type which has been chosen as being best adapted to raise steam quickly in case of fog causing a sudden demand for current. The fourth dynamo, which can light 750 eight-candle power lamps, is intended for use in the day time, and is driven by a compound engine made by Messrs. Bellis, running at 450 revolutions a minute, the steam being provided by a Lancashire boiler. The exciting current comes from a small continuous current dynamo carried on the main dynamo shaft; the exciters of the large alternators are driven by ropes from the governor drum. The lighting of the main thoroughfares is by Brockie-Pell arc lamps, which are supplied with continuous current by means of three of Ferranti's patent rectifiers. The lamps are placed from 70 to 110 yards apart, and give about 1200-candle power each. Fixed on the same standard are two incandescent lamps of 32-candle power, which are intended for use after midnight, and are automatically lighted by means of Edmunds' patent switch should the arc lamp go out. Private consumers have their choice between two scales of charges—they may either pay 6d. a unit for two hours' maximum demand, and 4d. for each unit additional, or 2½d. a unit, with an additional fixed charge of 1s. 3d. a quarter for each lamp demanded. For ordinary and irregular consumers the former scale is said to be the more suitable, while large and constant users of current will find the latter advantageous. The total cost of the installation has amounted to about £40,000. All the buildings and plant have been so arranged that they can be economically extended to meet a largely-increased demand in the future, and the mains have been laid in such a way as, it is hoped, will obviate the necessity of again disturbing the streets for many years.

THE new Weights and Measures Station occupies a very prominent position in the road leading down from High Street, Shoreditch, straight to the central raised garden. The building is itself a picturesque and interesting one, and forms a very effective embellishment of this broad avenue leading down into the heart of the new estate. Curiously enough, the one great disfigurement of the portion of the scheme now completed is a Board School. This was one of the earliest set up in London after the passing of Mr. Forster's Act, and it had to be left when all the slums around it were swept away, and brought as well as circumstances permitted into the general plan. The school, as a building, is already out of date, and so far behind the best of London schools that at no very distant date it should be rebuilt.

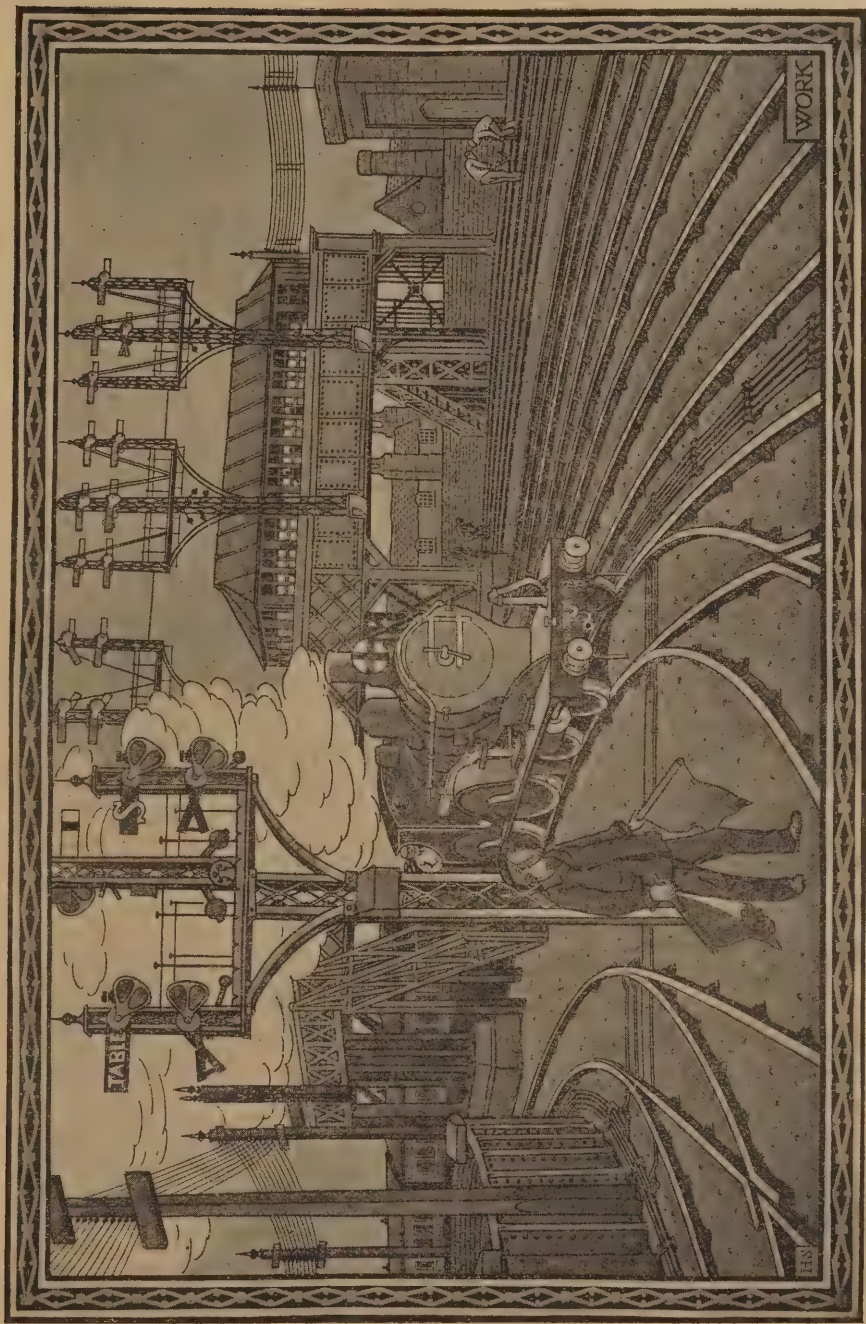
THE admission of pictures to the walls of Protestant churches will always be a debatable improvement, but the Dean and Chapter of St. Paul's have determined to test the feelings of the public on the question. They have accepted Mr. Watt's "Time, Death, and Judgment," and propose to hang it in the central nave near the north-west quarter arch of the dome.

THE large organ at St. Paul's is silent. It is only for a time, however. This is due to the fact that a thorough renovation is in progress, the action being made as perfect as the most up-to-date methods will allow. Among other additions is that of a celestial organ in one of the alcoves of the dome, the connection with the large instrument being made by electricity. A similar improvement has been made in the Westminster Abbey organ, the additional instrument being erected in the triforium.

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Surveying and Sanitary SUPPLEMENT.

OCTOBER 13TH, 1897.

MODERN SANITATION.

By H. A. SAUL.

(Continued from page 192.)

III.

CARE should always be taken to place the ventilating pipes in such positions that the longest length of drain may become ventilated, but giving precedence wherever possible to those drains which convey the foulest matter. Thus, had the outside w.c. been attached to a wall which continued up to the entire height of the building, it would have been better to have ventilated the drain connected therewith; but as the scullery and w.c. are only one story in height, this was inadvisable, as the presence of a ventilating pipe so near and below the upper back windows of the house would have been attended with inconvenience and danger. The length of unventilated drain being short, however, and the w.c. well away from the house, and communicating only with the garden, no danger or unpleasantness would be likely to accrue.

The above principle of ventilation for the longest lengths has been adopted with the drains in front of the house. If each of the down pipes had terminated in trapped gullies, and been separately connected to the intercepting chamber, there would have been two short lengths of unventilated drain. To avoid this, the R.W.P. near bay window has been taken into an untrapped gully, and this gully connected by a short drain with the trapped ditto. The untrapped gully being provided merely for the purpose of obtaining access to the drain if necessary, is fitted with a closed top, and the drain becomes ventilated by the air which enters through the grating of the trapped gully, and passes out of the R.W.P. at its point of juncture with the eaves gutter. The drain being short, and used only for rain-water, no inconvenience from smell is to be apprehended, particularly as the outlet is on a level with the roof, but with a longer drain or a gutter outlet immediately beneath a window it would be better to trap the gully and leave the drain unventilated.

A few words as to the junction of the ventilating pipe with the drain. The junction should be made at the top of the drain pipe, or, if this is not possible, in such a manner as to prevent the ventilating pipe becoming choked by the passing matter within the drain.

Ventilating shafts must be of the same diameter as the drain to which they are connected. In the case under consideration this shaft is constructed of 4in. circular cast-iron socketted pipes, jointed with red-lead and tow, carried well above the eaves gutter, and surmounted by a galvanised wire dome to prevent leaves or other matter from entering to obstruct the air passage. It is a matter of great importance to observe that ventilating

shafts should be constructed perfectly straight, and no bends should be introduced unless absolutely unavoidable, as they tend to prevent the easy passage of the air, the up-drawing of which is induced by the slightest breeze across the mouth of the shaft. Many a ventilating shaft has been rendered worse than useless by the unnecessary number of bends it has been made to contain.

The air inlet shaft shown, connected to the intercepting chamber, is constructed like the outlet shaft with cast-iron pipes, and is carried up against the boundary fence, terminating a few feet above the ground in a mica flap air inlet valve. This valve consists of a small galvanised iron box with a grating in front and a circular opening at the bottom to fit into the socket of the shaft; upon the inside of the grating one or more thin sheets of mica are suspended in such a manner as to completely close up the opening in the event of a rush of gas from the chamber, but to open readily at the slightest puff of wind from without or the suction of air from within the drain.

In Chapter I. it was stated that all drains must be disconnected from the house by means of traps, and in the last article diagrams were given showing the method of doing this in connection with the rain-water pipes and grease gully; but two points of connection remain yet to be dealt with before the drain can be considered complete—viz., that of the soil-pipe and the water-closet apparatus attached thereto, and the outside w.c. adjoining scullery.

Fig. 1 shows in detail a part section and part elevation of the upper portion of the soil-pipe. In this example the soil-pipe is constructed throughout its entire length of 4in. heavy cast-iron socketted galvanised pipes, jointed with lead which has been melted and run into the sockets; the top of the pipe is finished in exactly the same manner as described in the last chapter for ventilating shaft. At the point of intersection with the slates a lead collar is shown soldered to the pipe, and attached to a soaker to prevent the wet getting through and injuring the roof.

A glance at Figs. 1 and 2 will show the method of disconnection by means of the traps attached to the w.c. apparatus. Fig. 2 is a stoneware washdown apparatus of strong manufacture, finished cane colour on the outside and white inside, with the complete trap forming one piece with the basin; it is joined immediately to the drain, which is brought to the surface by an easy bend, and connected to same with cement.

The apparatus shown for the first floor upon Fig. 1 is an "Aquarius" washdown, finished a uniform ivory colour, but in this case the whole of the trap does not form one piece with the basin, but is completed within the cast-iron branch from the soil pipe, the socketted end of which fits into a groove cast in the apparatus, and the joint is completed by pouring in liquid cement until the groove is full.

The feature of this apparatus is the joint, which is always submerged in water; this insures it being left sound when first executed, and enables any defect which might occur subsequently to be readily noticed.

All fittings within the house must be trapped. At first thought this, in the case of appliances whose wastes discharge into trapped gullies, may seem superfluous, but a little consideration will prove otherwise. Every pipe which has to convey greasy or seapy water becomes fouled in a short time by an accumulation upon its inner surface. The atmosphere within the house being usually warmer than that outside, a current of air is induced which passes through the pipe, and bears with it a smell which, if not absolutely dangerous, is at least unpleasant. To prevent such an occurrence, a trap is fixed immediately below the apparatus, and it is advisable as a further precaution to insert a vent at the upper end of the waste-pipe, as shown on Fig. 3.

Fig. 3 is a section through the outer wall of the scullery, showing the sink and its connection with the grease gully. The sink is of stoneware and cane glazed, and the grating is of brass, to the underside of which is connected a drawn lead trap, which has a brass screw plug at bottom to enable the trap to be cleaned if necessary. The waste-pipe is of drawn lead, 2½in. in diameter, and is connected at the floor level to a stoneware bend, which communicates with the gully. This connection is shown in detail in Fig. 4.

The impossibility of making a sound joint between lead and earthenware pipes renders it necessary to provide a third material which shall act as intermediary, and hold readily to either lead or cement; brass or gunmetal has been found to possess both these advantages. Short lengths of brass or gunmetal pipe, known as *thimbles*, are specially manufactured with grooves upon the outside of the lower end, and with the upper edge prepared for contact with lead pipe. Fig. 4 shows the method of forming the joint where the *thimble* is cemented into the socket of the drain pipe, and connected to the lead waste with a plumber's wiped joint.

Plan No. 2 shows the sanitary arrangements upon the first floor. The bath and lavatory basin has each its separate trap, and a screw inspection cap of brass has been inserted near the point where the two waste-pipes are connected before passing into the outside pipe, to facilitate cleaning in the event of a stoppage. The bath is of the type known as "Roman," and is finished to be fixed without top or enclosures. The bath waste-pipe is of drawn lead, 2in. in diameter, and the lavatory waste 1½in., carried along the inside face of wall with a regular fall to the bath waste. In the w.c. the angle at which the soil-pipe branch is fixed is shown by dotted lines, and illustrates a further advantage of the apparatus used, as the branch is cast in one piece with a length of the soil-pipe, and can thus be readily set to any angle horizontally.

THE HEALTH EXHIBITION AT LEEDS.

(Continued from page 169.)

THE Health Exhibition at Leeds has quite realised its opening promises of success. We continue this week the brief notices of the exhibitors' wares we commenced a fortnight ago.

MESSRS. SUMMERSCALES AND SONS.

Laundry machinery needs no apology at a health exhibition, and Messrs. Summerscales and Sons' specialities are well to the front. Complete fittings for public wash-houses are

tion, showing as sanitary engineers, whose work is well-known in the North generally and round Leeds in particular.

THE UNITED ALKALI CO. LTD.

exhibit its chlorine disinfectants, with pamphlet of description.

THE HORSFALL FURNACE SYNDICATE, LIMITED.

This stand contains a small model of the Horsfall Destructor as erected at Hamburg, Edinburgh, and Bradford. The furnaces are placed back to back, and are filled by means of a special self-sealing hopper or platform

which is another exceedingly well-known feature of the Horsfall Furnace. This arrangement brings the gases over the hottest part of the fire before they escape, while at the same time it does not afford any facility for the escape of dust. Instead of having separate steam jets as formerly to each side of each furnace, they have now provided air-ducts, common to all the blast trumpets in the installation, and these are fed with air by steam jet blowers of colossal size. The Company exhibits one of these blowers designed to deliver 176,400 cubic feet of air per hour against a pressure of 2in. of air in the ashpits. This blower is probably the most powerful steam jet apparatus hitherto constructed.

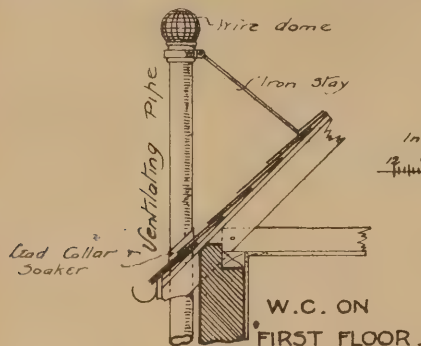


FIG. 1.

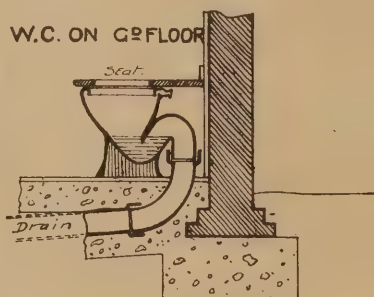


FIG. 2.

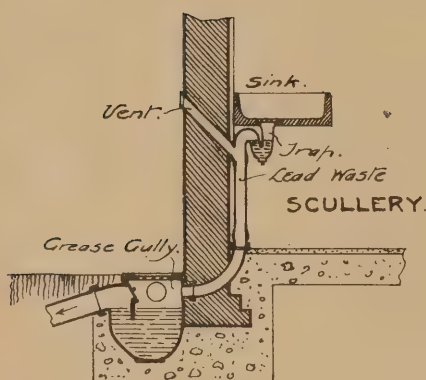


FIG. 3.

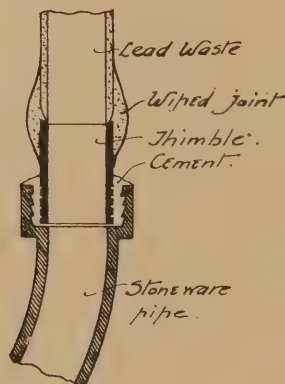
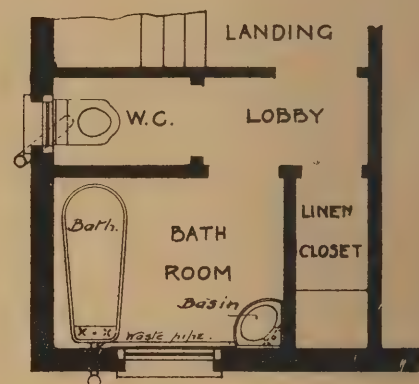


FIG. 4.

MODERN SANITATION.



PLAN No 2

Scale of feet.

a particular feature of the firm's manufacture, and leave little to be desired in any respect.

MESSRS. CLAUGHTON BROS.

have a first-rate show of lead castings and sanitary plumbing in general. They also show a special wash-down closet, and a "metallic combination" stair-tread.

THE MAGNETITE SEWAGE AND WATER PURIFICATION CO. LTD.

draw attention to its system, and provide full information and scale drawings of their "Simplicitas" continuous flow automatic sludge-removing precipitation tank.

MESSRS. SLATER AND SONS

assist in the local representation at the Exhibi-

common to both furnaces. The draught is forced in the well-known way peculiar to these furnaces by means of steam jets blowing air into cast-iron sides forming the sides of the furnace for a foot above the grate bars and delivering the air for combustion into the ashpit. The ashpits, of course, are closed—this arrangement has the effect of warming the air for combustion, and also of protecting the sides of the furnace from undermining by the clinker sticking to the brickwork. This feature is further illustrated by a full size cast-iron side made to the order of the Corporation of Ashton-under-Lyne for the triple scheme of refuse destructor, electric lighting, and electric tramways, for which Messrs. Fawcus and Clirehugh are the consulting engineers. A model also shows plainly the front exhaust,

The one exhibited has been made to the order of the Bradford Corporation.

THE PENDLETON SANITARY ENGINEERING CO.

shows Dr. Quine's patent sanitary ashbin, which solves the problem of the backyard in crowded localities by giving every facility for cleanliness and removal from the outside, while economising the yard space.

MESSRS. GARNER AND CO.,

of Smethwick, show Webb's patent reversible window sashes. In this window quite a new departure has been made. The sashes are pivoted, and placed in the frame one immediately over the other in a direct line, and not as with other windows, one behind the other.

This arrangement brings the insides of the stiles of both sashes flush with themselves and with the frame, which enables the employment of hinged and locking flies at the sides of frame, by which the sashes can be made perfectly firm, draught, dust, and burglar proof. The sashes, being loosely hung, can be easily taken out of frame for the removal of furniture, &c., while by the use of special friction pivots, or locking bolts, each sash can be regulated and securely fastened at any required angle for air inlet, or for cleaning, glazing, or painting inside room. It will be seen that this system dispenses with all cords, pulleys, weights, sash fasteners, and beads. All the fittings are simple. There are no loose parts.

MESSRS. RICHARD CLARKE & CO.,

of Heckmonwike, exhibit a new water-pipe, the "Eureka," a combination of an inner tube of pure block tin, an outer case of lead, and an intervening section of asbestos. The pure tin prevents lead poisoning, the water nowhere coming into contact with lead. This pipe, being made in the cold state, is free from all danger of amalgamation of tin and lead, which is formed when tin-lined lead pipes are made in a semi-molten condition. The danger of melting the tin lining when making joints (which occurs with the ordinary tin-lined lead pipe) is entirely obviated by the presence of the non-conducting section, which enables joints to be made as easily and even more quickly than in an ordinary lead pipe. The patentees also claim that the asbestos is a protection against frost, and that by reason of the great strength of the pipe will prevent bursting, being tested to ten times waterworks' pressure.

MESSRS. N. SIMMONS & CO.,

of Bristol, remind the visitor of the summer festivities by their "Diamond Jubilee" improved flushing apparatus, the object of which is to flush, not the closet only, but also, and specially, the soil-pipe itself, right away to the sewer.

THE Wortley Rural District Council is under the necessity of providing new sewerage works for the district of Chapeltown. The Council invited Mr. D. Balfour, an expert, to visit the neighbourhood and to advise, and, in accordance with instructions, Mr. Balfour has prepared three alternative schemes. The three schemes suggested are, first, a scheme for separately treating the sewage of each village in the district by chemical precipitation along with land filtration; second, a scheme for conveying the whole of the sewage by a system of branch and main outfall intercepting sewers to a site near Smithy Wood Colliery; and lastly, a scheme to take in further land adjoining the existing works at Ecclesfield, and Mr. Balfour condemns the first two schemes as impracticable and costly, and recommends the Council to adopt the latter. He estimates the cost at £10,650.

Surveying and Sanitary Notes.

MR. JOHN L. WRIGHT, in an article on "The Chicago Drainage Channel," describes it as "the greatest feat of sanitary engineering in the world." The channel is nothing less than an artificial river, 106ft. wide, cut from Lake Michigan to the Desplaines, a distance of 28 miles. It is intended to carry off the sewage of Chicago by this route, and the rivers Desplaines and Illinois, into the Mississippi. The sewage amounts to 50,000 cubic feet per minute. This is to be swept along by a volume of lake water averaging 300,000 cubic feet per minute. There is a fall of 82ft. from the surface of Lake Michigan to the surface of the Illinois river at Ottawa, 52 miles below the southern end of the canal. This fall means not merely an effective scour, but industrial driving power to the extent of some 80,000 horse-power. The total amount of drift and rock displaced is put at 40,000,000 cubic yards, and the entire cost at 31,000,000 dollars. It is hoped that this will lead to the Government constructing a ship canal from the Illinois river, which will open up a clear waterway for the largest ships from the Mississippi to the lakes via Chicago.

COLONEL A. G. DURNFORD, R.E., one of the Inspectors of the Local Government Board, has held a public inquiry with regard to the proposal of the Ipswich Corporation to borrow £4600 for works of sewerage. The Town Clerk said there was no question as to the need for the proposed works. It was not a matter of approving a new system; it was merely the extension of a system which the Board had approved many years ago, and in respect of which several loans had been allowed. The work of preparing the plans and so forth had been left in the hands of the Borough Surveyor.—Mr. E. Buckham (Borough Surveyor) produced the plans. The gradients were in all cases sufficient, he said, for the working of the sewer; provision was made for flushing manholes and ventilators, and the intercepting sewer was quite competent to take away the additional quantity of sewage.—In reply to the Inspector, the Town Clerk said that in some streets old drains were to be taken up, and new work put in; but these old drains were laid many years ago, and formed no part of the present system, for which loans had already been granted. It was pointed out, amongst other details, that it was proposed to continue the sewer in St. Peter's Street from College Street, where it joined the main line of sewer, to Rose Lane. The streets included with the list for which this amount is borrowed, which will not all be dealt with at once, lie in many parts of the town, including the Californian District, where sewerage has been so urgently called for.

At the recent Congress of the Sanitary Institute an interesting paper was read before the members of the engineering and architectural section by Mr. Edwin T. Hall, on "Fever Hospital Construction." Mr. Hall, who was the architect for the Park Hospital, belonging to the Metropolitan Asylums Board, which is the largest institution of its kind in the United Kingdom, pointed out that all the essential principles of hospital planning were laid down in the memorandum of the Local Government Board, issued in 1888, "On the Provision of Isolation Hospital Accommodation by Local Authorities." They were—(1) thorough isolation of infected buildings; (2) cross currents for thorough ventilation; (3) avoidance of dark corners anywhere; and (4) the necessity of keeping from direct contact with wards, as far as possible, receptacles for excrement. No matter what was the size of the hospital, those principles should be acted upon. The happiest results had followed the decision of the Metropolitan Asylums Board, taken in 1885, to separate smallpox patients, from which the danger was greatest, from other infectious cases, and to establish for smallpox cases floating hospitals on the Thames, at Darent. With regard to sites, an open area, surrounded, if possible, by roads which induced wind currents, on a gentle slope, with good trees near the boundaries, and as compact in shape as possible, would be found the best. In conclusion, Mr. Hall made an appeal for an architectural treatment in all hospitals. He believed, he said, in the artistic treatment of wards as being of a refining as well as a curative value to patients.

MR. G. W. WILCOCKS, M.Inst., C.E., an Inspector of the Local Government Board, has held an inquiry into an application made by the Rotherham Town Council for sanction to borrow £55,269 for the purposes of sewerage and sewage disposal. In his statement the Town Clerk said the Corporation had decided to have constructed sewage disposal works, and had visited a large number of the best schemes in the country, ultimately coming to the conclusion that the one in operation at Wolverhampton was the best adapted for the Rotherham district. The Council therefore engaged Mr. R. E. W. Berrington, the Wolverhampton engineer, whose plans and scheme it had adopted. A contract had been entered into for the purchase of 90a. 1r. 2p. of freehold land for £18,052 10s., as a site for the proposed works. Mr. Berrington produced plans and gave detailed particulars of the scheme. The sewage after being collected and carried to the outfall works would pass into tanks, the effluent going through two series of coal filters, and afterwards passing on to land, finally finding its way in a satisfactory condition as to purity into the river. The sludge would be treated and pressed, being available for farmers' use.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Oct. 15	Bletchingley—Workhouse Alterations	Godstone Union	T. Eliff, Caterham, Surrey.
" 15	Redruth—Stone Fencing, &c.		H. W. Collins, Architect, Penryn-street, Redruth.
" 15	Birstall, Yorks.—Boys' Cloakroom	Brownhill National Schools	Holtom and Fox, Architects, Westgate, Dewsbury.
" 15	Devonport—Residence, &c.	A. J. Rider	R. H. B. Neal, Architect, Central Exchange, Plymouth.
" 15	Rathdrum, Ireland—Labourer's Cottage	Guardians	— Little, C.E., Rathdrum.
" 16	Buckfastleigh, Devon—Alterations, &c. (Two Contracts)	J. Fleming	Torr Dean Farm, and Bigdon Stables, Buckfastleigh.
" 16	Callan, Ireland—Fifty-eight Cottages	Guardians	J. F. Shelly, Clerk, Board-room, Callan.
" 16	Spalding—Three Small Houses	R. W. Walden	R. H. Holmes Hand, 6, Double-street, Spalding.
" 16	Silsden—Twelve Houses	Co-operative Society	R. P. Holdsworth, 1, St. John-street, Silsden.
" 18	Bradford—Nineteen Houses		Milnes and France, Architects, Bradford.
" 18	London, W.—Enlarging Nurses' Home	St. Marylebone Guilds	A. S. Snell, 22, Southampton-buildings, Chancery-lane, W.C.
" 18	Croydon—Boundary Wall	Union Guardians	T. West, 23, Coombe-road, Croydon.
" 19	Alnwick—Additions		E. R. Temperley, Clerk of Works, Alnwick Castle.
" 20	Coventry—School Additions	School Board	G. and J. Steane, 22, Little Park-street, Coventry.
" 20	Leeds—Walling, &c.		City Engineer, Municipal-buildings, Leeds.
" 20	Morley, Yorks.—Public Baths	Corporation	Holtom and Fox, Architects, Westgate, Dewsbury.
" 20	Morecambe—Concert Pavilion	Pier Company	E. Hill, Secretary, Morecambe.
" 21	Belfast—City Hall	Corporation	E. Thomas and Son, 7, Queen Anne's-gate, S.W.
" 21	Kingston-on-Thames—Hospital Buildings		Town Clerk, Clatterton House, Kingston-on-Thames.
" 22	Eastbourne—Lodging-house	Sanitary Committee	W. C. Field, Borough Architect, Town Hall, Eastbourne.
" 22	Elgin—Buildings		J. Innes, 86, Gordon-street, Huntley.
" 22	Lowestoft—Batteries, Drill Shed, &c.	Admiralty	Director of Works Department, Admiralty.
" 22	West Mersea, Essex—School Alterations	School Board	J. W. Start, Architect, Colchester.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM,	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Oct. 22	Winchfield—Cottage Home	Guardians	Union House, Winchfield.
" 25	Seaham Harbour—Shed, &c.	Urban District Council	Council's Office, Marlborough-street, Seaham Harbour.
" 26	Windsor—Passenger Station, &c.	Great Western Railway Co.	Engineer, Paddington Station, London.
" 26	Hampstead—Fire Brigade Station, Alterations, &c.	London County Council	Architect's Department, 13, Spring-gardens, S.W.
" 26	Leeds—Public Baths	Baths Committee	W. Hanslock, Architect, Branch-road, Batley.
" 26	West Ham—Ward Pavilion at Hospital	County Borough	L. Angell, Town Hall, Stratford, E.
" 28	Presteign—Pulling down and Re-erecting School	Radnorshire County Governing Body	H. Teather, Andrew's-buildings, Queen's-street, Cardiff.
" 31	Wrexham—Latrines	County School Governors	J. Morison and Son, 10, King-street, Wrexham.
Nov. 1	Manorhamilton, Ireland—Repairs		E. O'N. Clarke, County Surveyor, Carrick-on-Shannon.
" 1	Barry Dock, Wales—Offices	Barry Railway Company	Company's Engineer, Barry Dock.
" 2	Barnes, S.W.—Six Shops and Dwelling-houses		F. W. Stocker, 90 and 91, Queen's-street, Cheapside, E.C.
No date.	Ashton-cum-Aughton, Yorks.—Closet Accommodation	School Board	W. Dust, 40, Bank-street, Sheffield.
"	Barnsley—Eleven Houses		W. McCoy, Wellington-street, Barnsley.
"	Bridlington Quay—Villa Residence		J. M. Dossier, 2, Manor-street, Hull.
"	Carlisle—Offices	Carr and Co., Limited	Johnstone Bros., 39, Lowther-street, Carlisle.
"	Croydon—Plastering Five Shops	J. Smith and Sons	Foreman on Works, High-street, Croydon.
"	Halstock, Yeovil—Two Cottages, &c.		J. Pring, Halstock, Yeovil.
"	Harrogate—Villa		H. E. and A. Brown, Architects, Harrogate.
"	Harrogate—Cabmen's Shelter		H. E. and A. Brown, Architects, Harrogate.
"	Headingley, Leeds—Stables, &c.	H. R. Kirk	A. E. Kirk, 13, Bond-street, Leeds.
"	Rushwood, near Tanfield—Lodge	T. W. Nussey	H. E. and A. Brown, Architects, Harrogate.
"	Sowerby Bridge—House		S. Wilkinson, 7, Clifton-street, Sowerby Bridge.
"	Stowe, near Burslem—Farmhouse	Stowe Charity	W. H. Walley, Architect, Queen's-street, Burslem.
"	London—Artisans' Dwellings	Shoreditch Vestry	R. Plumble, 13, Fitzroy-square, W.
"	Hillsborough, Yorks.—Two Houses		T. Peckett, 19, Wood-road, Hillsborough, Sheffield.
"	Ilkley—Pair of Semi-detached Houses		Isitt, Adkin, and Hill, Prudential-buildings, Bradford.
"	London, S.W.—Alterations, &c.		R. Curwen, 149, Bishopsgate-street Without, London, E.C.
"	Ramsgate—Bramley Fall Stone	Corporation	W. A. McIntosh Valon, Engineer, Ramsgate.
"	Shoreditch, London—Artisans' Dwellings	Vestry	R. Plumble, 13, Fitzroy-square, W.
"	Leeds—Ice and Cold Storage Premises	Yorkshire Pure Ice and Cold Storage Co.	W. S. Braithwaite, Architect, South-parade, Leeds.
ENGINEERING—			
Oct. 16-27	Birmingham—Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 18	Nice—Steel Bridge over the Paillon		Commercial Department of the Foreign Office.
" 18	Southend-on-Sea—Pumping Machinery	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 18	Baldock, Herts.—Machinery		J. Randall, Stotfold Mills, Baldock, Herts.
" 19	Budeleigh Salterton—Gasholder, &c.	Gas Company	W. A. Paddfield, Gas Offices, Exeter.
" 20	Belize, British Honduras—Electric Lighting	District Board	A. Simkins, c/o F. Otto, Tower-chambers, Moorgate-st., E.C.
" 20	Glasgow—Electrical Equipment of Tramways	Corporation	J. Young, 88, Renfield-street, Glasgow.
" 20	Llyn Fawr, Wales—Reservoir, &c.	Rhondda Urban District Council	T. Rees, C.E., Corn Exchange-chambers, Newport, Mon.
" 22	Manchester—Storage Tanks, Engines, &c. (4 Contracts)	Corporation	Waterworks Office, Town Hall, Manchester.
" 23	Swansea—Railway	Rhondda and Swansea Bay Ry. Co.	Engineer, 9, Fisher-street, Swansea.
" 23	Penrith—Bridge	Rural District Council	C. N. Armon, Clerk, Penrith.
" 27	London, S.W.—Laundry Machinery	Metropolitan Asylums Board	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
Nov. 5	Hull—Electrical Equipment of Tramways	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 30	Singapore—Street Lighting	Municipal Commissioners	C. C. Lindsay, 167, St. Vincent-street, Glasgow.
IRON AND STEEL—			
Oct. 16	Brentwood—Wrought Iron Fireguards	Asylum Visitors	County Asylum, Brentwood.
" 18	London, S.E.—Pails	Vestry of St. Mary Magdalen	F. Ryall, Vestry Clerk, Town Hall, Spa-road, S.E.
" 18	Croydon—Stores	Town Council	Borough Engineer, Town Hall, Croydon.
" 19	Leeds—Street Name Plates		Town Clerk, Leeds.
" 25	London, W.—Stores	Great Western Railway Co.	Stores Superintendent, Swindon.
PAINTING AND PLUMBING—			
Oct. 19	Wigan—Cleaning and Painting	Corporation	Borough Engineer, Municipal Buildings, Wigan.
No date.	Halifax—Painting		J. S. Lees and Co., Southgate-chambers, Halifax.
ROADS—			
Oct. 15	Preston—Paving, &c.		Borough Engineer, Town Hall, Preston.
" 16	Guildford—Broken Granite	Corporation	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 18	London—Road, Muswell-hill		Vigers and Co., 4, Fredericks-place, Old Jewry, E.C.
" 18	Spennymoor—Road Works, &c.	Urban District Council	G. W. Rogers, Surveyor, Silver-street, Spennymoor.
" 19	Leeds—Kerbing	Corporation	T. Hewson, City Engineer, Municipal-buildings, Leeds.
" 22	Walthamstow—Road Works	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
" 25	Beckenham—Laying Crossings, &c.	Urban District Council	J. A. Angell, Council's Offices, Beckenham.
" 27	Ramsgate—Cherbourg Quartzite	Works Committee	M. Aspinall, Borough Engineer, Broad-street, Ramsgate.
No date.	Burnley—Road Widening, &c.	Rural District Council	S. Edmundson, 18, Nicholas-street, Burnley.
"	Manchester—Stores, &c.	Highways Committee	Chief Clerk, Highways Office, Town Hall, Manchester.
"	Mirfield, Yorks.—Road-work		Calder and Hebble Navigation, South Gate, Halifax.
"	Phibsborough, Ireland—Road and Sewer		Dunne and Co., 14, Great Denmark-street, Dublin.
"	St. George, Bristol—Streets, &c.		G. C. Ashmead and Sons, Small-street, Bristol.
SANITARY—			
Oct. 15	Royton, Lancs.—Sewers	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
" 15	Lichfield—Cleaning out Pool		H. A. Hill, 26A, Paradise-street, Birmingham.
" 16	Portland—Sewers, &c.	Land Syndicate Co.	L. Webster and Co., Surveyors, High West-st., Dorchester.
" 18	Croydon—Earthenware Drain Pipes	Town Council	E. Mawdesley, Town Clerk, Croydon.
" 19	Leeds—Sewers		T. Hewson, City Engineer, Municipal-buildings, Leeds.
" 19	Leeds—Lime for Sewage Works		Town Clerk, Leeds.
" 20	Knaresborough—Sewerage, &c., Works	Rural District Council	D. Balfour, 3, St. Nicholas-buildings, Newcastle-on-Tyne.
" 22	Walthamstow—Sludge Press	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
No date.	Salford—Cleaning out Reservoirs, &c.		Potts, Son, and Pickup, Architects, Victoria-buildings, Manchester.
"	Cockermouth—Sewerage Tiles		Harris and Sons, Limited, Derwent Mills, Cockermouth.
"	Middlesbrough—Cleaning out Beck		Sadler and Co., Chemical Works, Middlesbrough.
TIMBER—			
Oct. 25	London, E.C.—Telegraph Poles	Postmaster General	C. E. Stuart, Controller of Stores, General Post Office, E.C.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 20	Colne—Technical School, Free Library, and Public Hall	£50, £35	Corporation.
" 23	Wolverhampton—Free Library (selected architects)		Town Clerk, Wolverhampton.
" 30	Uxbridge—Schemes for Sewerage and Sewage Disposal	{ £45 (if combined) £15 for Eastcote and £25 for Northwood (if separate schemes)	Rural District Council.
Nov. 13	Byfleet—Village Hall and Club	£26 5s.	Committee.
" 20	Southend-on-Sea—Plans for Church	Not stated	St. Alban's Church Committee.
" 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
" 30	Wells—Plans, &c., for Public Hall	£25, £15, £10	Town Council.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
" 15	Nottingham—Designs for Laying Out and Planting Cemetery	£100, £50	Corporation.
" 1	Nottingham—Designs for Cemetery Buildings	£100, £50	Corporation.
No date	Dukinfield—Town Hall	£40, £20	Urban District Council

THE ARCHITECTURAL ASSOCIATION.

PRESIDENTIAL ADDRESS.

THE Architectural Association commenced the Session 1897-98 last week. The annual general meeting was held on Friday night at 9, Conduit Street, and, after the presentation of prizes—a list of winners will appear in our next issue—the President, Mr. Hampden W. Pratt, delivered his inaugural address. He said: There are certain periods in the history of an institution when it is convenient and customary, not to say interesting and instructive, to look back and trace the course of events—in other words, to review the past; also to consider the present, and look forward to the future. For fifty years the Architectural Association has striven to supply the needs and promote the welfare of the architectural student, and it must be very gratifying to the founders of the Society, a few of whom happily survive, to look upon the flourishing body that still bears the name of the Architectural Association. The object of establishing the Association was “to enable young men who are studying Architecture to meet for general improvement in the various branches of their Art.” In a circular issued at the origination of the Society it was pointed out that “the great advantages a scheme like this, if carried out, would offer to the architectural student, must be obvious at a glance. By this institution all the future members of the Profession, their objects, their labours, their studies, would become known to each other. The incalculable advantages this knowledge and acquaintance would afford to those engaged in the same study; the mutual instruction and valuable assistance each could afford, the

HONOURABLE SPIRIT OF EMULATION

that would be engendered; the furtherance of their Art in general, and the happy effect that must be produced by all the future architects becoming a band of friends, intimately associated with each other in their plans and projects, must and will prove of the greatest advantage to all those connected with the scheme.” This forecast has been fulfilled to the letter, and we may truly say that the bonds which unite us to-day are as strong and as powerful as ever they were, and no one but a Hercules could sever or destroy them. There is scarcely anything recorded of the early years of the Association, its proceedings were not reported as they now are, and it is mainly through the unpublished minutes of its meetings that we are able to glean something of its history. As we turn over the pages of its log-book we may note the chief incidents of the voyage, and trace its progress from year to year. The question of public competitions seems to have been early considered, for in 1850 a code of regulations was drawn up and issued; this interesting document was published in the jubilee number of “Architectural Association Notes,” and contained some excellent suggestions which

THE AGITATION OF MANY YEARS

has not succeeded in satisfactorily settling. As evidence of a desire to enlarge its scope, we find that Mr. R. Kerr, 1852, laid before the Committee a scheme for the formation of an Architectural Academy, comprising courses of study, professorships, lectures, graduation, &c., and a resolution was passed to the effect that “the proposition is well worthy the consideration of the Profession generally, and that any assistance toward the furtherance of this object that can be rendered by the Association shall be liberally given.” Unfortunately, financial troubles proved a stumbling-block to the smooth working of the Society, chiefly owing to the members getting into arrears with their subscriptions—an experience not confined, by the way, to the infancy and youth of the Association, as subsequent treasurers can testify; but at the outset it was a serious matter and led to the appointment of a Committee of Investigation in 1855. This Committee reported that they “found the Association in a state of apathy, torpor, and depression unparalleled in former sessions”

the financial statements had been misleading owing to the

CONCEALMENT OF HEAVY LIABILITIES,

and the management of the Society called for improvement. It was further suggested that a lending library should be formed, and an “Architectural Association Magazine” might, if published, be expected to pay its own expenses. The report concluded with an earnest appeal for a renewal of the enthusiasm which characterised the members at the formation of the Society. Following closely upon the reception of this report came a proposal to memorialise the Institute “for the establishment of an examination which should eventually serve as the basis for the issue of such a diploma as shall certify that the holder thereof is fully qualified to practice as an architect.” A reply was received from the Institute in 1856 to the effect that the Council felt it was premature to pronounce an opinion upon so important a subject, and that before they could recommend the Institute to undertake such a charge it would be necessary to ascertain the opinion of the Profession generally, at the same time they would be able to come to a sounder judgment after some experience of the District Surveyors’ Examination recently instituted. Disappointment followed this decision, interest in the Society continued to flag, and in May, 1856, a special meeting was held, at which a resolution was brought forward to

TERMINATE THE EXISTENCE OF THE ASSOCIATION;

this, however, was defeated by a large majority, thus indicating that there was at any rate some vitality amongst the members. In the following month, an important letter was received from the Institute suggesting an amalgamation of the Association with that body. This communication was duly considered, and a resolution passed to the effect that it is not expedient for the Association to join the Institute on the terms suggested. The crisis through which the Association passed in 1856 was followed by an awakening interest in its welfare, and a committee was appointed to take into consideration the defective means of architectural education and the desirability of forming classes for the special study of subjects immediately connected with professional practice. In January, 1857, a *conversazione* was held, at which Mr. Ruskin was present and read a paper on “The Use of Imagination in Modern Architectural Design,” and though forty years have passed since then it is interesting to recall and record some of the words of a master in Art who in times past has kindled so much enthusiasm in the architectural breast. Mr. Ruskin said: “If they were asked abruptly, and required to answer shortly, what were the qualities which distinguished great artists from mean artists, he believed they might reply—first, their imagination; second, their industry. Some of them might doubt the justice or the necessity of attaching so much importance to this latter quality, because there might be dull men who were industrious, and clever men who were indolent; but though the industrious man might be dull, and the indolent man might be clever, he had never known a great man who was not industrious. But though this quality of industry was essential to an artist, it

DID NOT MAKE AN ARTIST;

for many people were always busy whose doings are of little worth. Neither did feeling make the artist; but the gift which distinctively made the artist—without which he would be feeble in life and forgotten in death—was that of imagination. Imagination was not manipulation, or calculation, or attention; it was something more, something higher than all or any of these. If an architect lays his bricks and stones well, we praise him for his manipulation; if he keeps well within his contract, we praise him for his calculation; and if he arranges his beams so that nobody drops through his floors, we praise him for his caution. But, if he is to be a great architect, he must do something more than possess and exercise these qualities.” After referring with

regret to the separation between sculpture and Architecture in modern times and to the field opened to the fancy by the junction of sculpture with Architecture, he remarked that “nearly every other Art was limited in its space; but was there anything within the range of sight, or thought, or conception, which might not be of use to the architect, or in which an interest might not be awakened to the advantage of his Art?” Concluding an eloquent address, Mr. Ruskin said, “So soon as they desired to build largely, they would find that their work must be associative; one could not

CARVE A WHOLE CATHEDRAL

himself, either their own work must be disgraced, or they must raise their fellow-designers to some correspondence of power. They would take the lead in disposing of their building, but they must trust to the genius and invention of others in the disposal of its detail; and in doing this, too, they must rejoice in the very powers that may promise to rival them. If they endeavoured to depress or disguise the talents of their subordinates, they were lost to their Art, for it was their own prosperity they were seeking, and their own skill that they were striving to perpetuate. He placed no utopian standard before them; he had said that they must surrender their own pre-eminence to their love of building, and whomsoever they found better able to do what would adorn it than they were, that person they were to give place to, and rejoice at seeing their edifice growing more beautiful under his chisel, and next rejoicing that they had done kindly. The man who sees capacity in another, and does not acknowledge it, or assist in bringing it forth, is not the refuser of a kindness, but the committer of an injury. They had the sweet consciousness that as their Art embraced a wider field than all others, so it was more profound and holy than all others. The artist, when his pupil is perfect, must see him leave his room that he may pursue his destiny perhaps as an opponent in toil; but architects alone were called by kindness to fraternity of toil. Those massive piles which rise above the

DOMESTIC ROOFS OF OUR ANCIENT CITIES

have a meaning more profound and true than is commonly attached to them. Men say they are good for worship—but so is every mountain, glen, and rough sea shore; they have the indisputable and distinguished glory that their mighty walls were raised by men who have given aid to each other in their weakness, and the strength of their structure has its foundations on manly friendship, which conduces to awaken the sweeter cadences and symmetry of the human soul.” What effect Mr. Ruskin’s eloquent address had on the members is not recorded, but it is pleasing to find that the Committee were able at the commencement of the next session to congratulate the members on the general improvement which had taken place in the prospects and financial position of the Association, which was at length freed from its embarrassments, a fund having been raised for the purpose. A movement was on foot at this period to provide a home for the architectural bodies in London; the Architectural Union Company had been formed, and was erecting a building in Conduit Street, and after prolonged negotiations, the Association arranged terms, and removed from Lyon’s Inn Hall, holding its first meeting at 9, Conduit Street, on April 1st, 1859. In that year, for the first time, a prize was awarded in the class of design, and a prize essay instituted, the subject being “Street Architecture and its proper treatment.” The

ACQUISITION OF NEW PREMISES

might have been expected to mark a renewal of vigour in the work of the Association, but, strange to say, only twelve months had elapsed when a resolution was passed regretting the want of support afforded by the members, and asking the Committee to consider and report whether there was any course short of closing its operations. The Committee recommended that all office bearers, with the exception of three, should for the next session be members who had never held office before; accordingly

some new blood was introduced into the direction of affairs. A circular having been issued by the R.I.B.A., inviting suggestions on the establishment of a voluntary examination, the Association held two meetings at the close of 1860, and after fully discussing the matter passed two resolutions: 1. "That in the opinion of the Architectural Association a strictly voluntary examination should be instituted with a view of guiding the student in architecture to such a course of study as would enable him to arrive at

COMPETENCE IN HIS PROFESSION."

2. "That in the event of a professional examination being insisted upon, it should be limited to those subjects which bear directly upon the practice of the Profession, and this Association is apprehensive that any examination upon the principles of taste might lead to results unfavourable to the progress of Art." In 1860 botany and modelling classes were formed, the latter proving very successful. In 1862 the library, which had been in course of formation for some time, was at length opened. In the same year Saturday afternoon visits were organised, the first being to Westminster Abbey, a prize being given for the best account of the visit. At the conversation in October, 1862, a musical programme was introduced for the first time, the services of the artists being gratuitous. In 1863 the voluntary examination class was established for the study of practical subjects, with special reference to the examination then instituted, the Association having pledged itself to use all its influence to induce the members to qualify themselves for it. In the following year a class for the study of figure-drawing was formed, under the direction of Mr. E. J. Poynter, and was so attractive that fifty members joined it. A water colour class was subsequently started. In 1867 the A.A. Sketch Book was commenced, the parts being issued monthly at a subscription of one guinea per annum, as now, and an excellent publication it has always been. At this time the Class of Construction was formed to carry on the work formerly undertaken by the Voluntary Examination Class; and a year later the Elementary Class of Design was started. The Association had now

SETTLED DOWN TO STEADY WORK,

for in Session 1868-69 a number of sub-committees were appointed and a balance sheet published for the first time, showing an income of about £240 and a substantial sum in hand; it became necessary, also, to compile a catalogue of the library, and this was issued in 1869. We next come to an important report drawn up in 1869 by a Joint Committee of the Institute, the Academy, the Architectural Museum, the Association, and the Architectural Exhibition, on the question of establishing a "School of Art accessorial to Architecture." This Committee carefully investigated the scheme of the voluntary examination, and arrived at the conclusion that its failure was due to: 1. The absence of a formal certificate of having passed the examination. 2. The want of such a stimulus or pressure as would make the passing of the examination professionally necessary. 3. Inefficient preliminary education. 4. Want of system in architectural education. They accordingly recommended: 1. That a text-book or pamphlet should be prepared, containing a complete curriculum of study for the architectural student. 2. That a certificate be granted to all who pass the voluntary examination. 3. That at some future period the membership of the Institute be made dependent on the passing of the voluntary examination in the Class of Proficiency. 4. That a preliminary examination be held in elementary subjects open to all students who have been at least one year in an architect's office. 5. That

THE INSTITUTE SHOULD ASSIST THE ASSOCIATION

to carry out the proposed Drawing School. 6. That a Committee be appointed to compile the text-book referred to. As a result of the fifth recommendation Architectural Art Classes were established at the Architectural Museum under the management of a Com-

mittee composed of representatives of the Institute, the Museum, and the Association. These classes were commenced in 1870, and comprised figure drawing and architectural ornament, the latter being conducted by well known architects as visitors. For two years the Association contributed £25 annually towards the expenses of these classes, which, however, soon languished. The first annual excursion took place in 1870, when Lincoln and district were visited, the party being conducted by the late Mr. Edmund Sharpe; and it may be remarked here that every year since then some fresh district has been visited. During the next ten years (1870-80) no important change or event took place, the membership grew from 500 to 800, two new classes were formed, viz., for the study of colour decoration and architectural science, the latter being subsequently called the Advanced Class of Construction; some courses of lectures were also delivered; special arrangements were introduced

FOR THE BENEFIT OF COUNTRY MEMBERS

in connection with the classes and library, and the Birmingham Architectural Association was admitted as a provincial branch. The Institute opened its Library to members of the Association under twenty-three years of age. New and amplified rules were adopted in 1877, and four years later the entrance fee was raised to one guinea. Additional rooms were taken at Conduit Street in 1879; the Architectural Association medal was founded in that year and the Architectural Association Travelling Studentship two years after, when a sum of nearly £700 was subscribed by past and present members to provide the necessary funds. In 1881-82 the Committee thought it desirable to vary somewhat the arrangement of the classes, with a view to making them specially useful to members preparing for the new obligatory examination of the Institute, which commenced in 1882. Courses of lectures on the history of Architecture and on Construction was given, and a new class started for the study of planning and specification writing. In 1884 a Special Education Committee was appointed to enquire thoroughly into the general organisation of the Association, with a view to further systematise its working and extend its usefulness, and a scheme was adopted, in 1885, for amending and consolidating the work. The main feature consisted in forming

TWO DEFINED DIVISIONS OF STUDY,

called the elementary and the advanced, the former comprising elementary classes of design and construction, preceded by lectures on history and construction, and the latter consisting of classes of design, colour decoration, advanced construction, quantities and surveying, but no lectures. The work was conducted by visitors, who were formed into a Committee of Advice. An attempt was made at this time to increase the subscription of members to one guinea, with the object of affording increased educational advantages, but the proposal was defeated by a small majority. In 1885, the Saturday vacation visits were first organized, and in the ensuing session many improvements were effected in the library, viz., a new system of registration, the addition of a reading room, and the opening of the library twice a week instead of once. In 1886-87, a practical class of masonry was carried on as an experiment at the City and Guilds Institution, and a series of lectures started on Graphic Statics. A noteworthy step was the issue in April, 1887, of the first number of A. A. Notes at a small subscription, the desirability of providing a means of intercommunication amongst the members being at length realised, though it was not until four years later, when it was issued free to all members, that its purpose was more completely fulfilled. The gradual

INCREASE IN THE NUMBER OF MEMBERS

and the large attendance at the ordinary meetings forced the Committee to consider the necessity of providing better accommodation, and by the kindness of the Institute we were permitted to hold our meetings in their room during session 1887-88, a privilege which has

been courteously extended to us ever since. About this time rules were passed to facilitate a scheme of affiliation, with the desire of creating a bond of union between the Association and provincial Societies; the Birmingham and Glasgow Associations joined us, but the arrangement did not long exist. An elementary class of ornament and colour decoration now appeared and was well taken up, and two years later the sketching and measuring class was formed for the purpose of visiting buildings in the neighbourhood of London during the summer. At the same time an A.A. Cycling Club was organised with the object of making runs to places of architectural interest, but this club soon disappeared, and, notwithstanding the growing popularity of cycling, no attempt has been made to restart the club. Another club was founded in 1888, viz., the Lyric Club, one of the objects being to promote friendly intercourse among the members; and those who appreciate the social advantages of music, dancing, and smoking are still provided for at this club. Reference may be made here to the Camera Club, though founded at a later date (1893). Apparently, this club is not so prosperous as it was at first, and a hope may be expressed here that some effort will be made to revive its usefulness. We have now arrived at

THE LAST GREAT MOVEMENT

in the Association. In 1889 a Special Committee on Education was appointed, and after exhaustive enquiries its recommendations were approved by the general body in May, 1890. Following this, a special committee was appointed to consider the revision of the rules, a new constitution and bye-laws being adopted by the general body in the following January. These included the raising of the entrance fee to two guineas and the subscription to one guinea, to all members elected after 1890; and also provided for the appointment of paid officials. A re-organisation committee was next appointed to prepare the new education scheme and resulted in the new curriculum. In order to establish the new scheme and provide for the extra cost and risk incidental thereto, as well as the outlay involved in obtaining suitable premises, an appeal was issued and generously responded to by members of the Profession. The scheme provided for a complete course of study extending over four years, that being considered as the least time that should be given to the study of the subjects. It was laid down that the

AIM OF THE COURSES

was to help members to fit themselves for their work as architects, by providing the means by which they may supplement the training acquired in offices; the principal object not being to prepare candidates for the examinations, although the courses were chiefly based upon the programme of the examinations. Premises having been secured in Great Marlborough Street and adapted to meet our requirements, the new scheme was launched in 1891-92. From the outset the first and second years' courses were well supported, the third being thinly attended, and the fourth not fully started. In 1892-93, Divisions I. and II. continued to be well supported, and Divisions III. and IV. showed improvement. In 1893-94 there was a poor attendance in Divisions III. and IV., indicating the necessity of re-arranging these Divisions. In 1894-95 the complete course was arranged in three divisions, but the attendance in Division III. was again disappointing, and a special committee was appointed to enquire into the working of the classes. As an outcome of this enquiry the Institute agreed to alter the dates of the examinations so as to avoid interference with the working of the classes. In 1895-96 the curriculum was arranged in two divisions, the complete course extending over four years, and a School of Design started, being attended with considerable success. Last session the work of the classes and studio showed a continued improvement, especially in Division I. The School of Design and Handicraft was most successful, and the whole session was devoted to one subject with good results.

(To be continued.)

Professional Items.

ABERDEEN.—The Plans Committee of the Town Council reports having sanctioned the plans of the following new buildings:—Two dwelling-houses on the south side of Hilton Street, for Mr. George Mackie, surveyor; Woodside; two dwelling-houses on the north-east side of Cranford Road, for Mr. William Anderson, builder, per Messrs. Davidson and Watt, architects; dwelling-house, offices, and shop, on the west side of Belmont Street, for the City Property Association of Aberdeen, per Messrs. Walker and Duncan, architects (amended plan); alterations at No. 53 and 55, St. Nicholas Street, per Messrs. Brown and Watt, architects (amended plan); four dwelling-houses on the west side of Clifton Road, three of the houses being for Mr. Joseph Shirras, builder, and one for Mr. Thomas Philip; additions to cottage at Clayhills, for Mr. John Chisholm, carting contractor, per Mr. Duncan Hodge, architect (amended plan); five dwelling-houses on the west side of new street off Urquhart Road, for Mr. William Bremner, per Messrs. Walker and Ross, builders; two dwelling-houses on the west side of the proposed new street at Angusfield, for the Rubislaw Granite Company, per Mr. R. G. Wilson, architect; four dwelling-houses on the north-east side of Whitehall Road, for Mr. Alexander Young, house proprietor; two dwelling-houses on the north-west side of Walker Road, Torry, for Mr. John McGregor, builder; shed on the west side of Broomhill Road, for Mr. James Farquhar, builder (amended plan); stables and van sheds at Millbank, Berryden Road, for the Northern Co-operative Company, Limited, per Mr. Alexander Mavor, architect; dwelling-house on the west side of Holburn Street, per Mr. Duncan Hodge, architect; alterations and additions in connection with the property, No. 76, Bon-Accord Street; two dwelling-houses on the north side of Union Grove, for Mr. James Park, builder, per Mr. John Cameron, builder; two dwelling-houses on the north side of Union Grove, for Mr. James Fyfe, contractor, per Mr. John Cameron, builder.

BIRMINGHAM.—The finest stained-glass window erected in St. Philip's Church, in memory of the late Bishop Bowlby was dedicated a week ago. The interior of the fine old church—"the pride of the place," Hutton called it—is certainly enriched by this latest addition to its beauties. From the design of Sir Edward Burne-Jones, and constructed by the well-known firm of Messrs. Morris and Co., the window is a magnificent work of Art. It overlooks the baptistery at the west end of the church, immediately facing the much-admired Burne-Jones window in the chancel. The design represents Christ sitting in judgment surrounded by angels, carrying vials of destruction. Immediately beneath is an angel blowing a trumpet, with a city in ruins, and waiting below a crowd of people, with upturned, expectant faces, on which there is a look of awe-struck suspense. The whole work has been admirably conceived, and carried out with a truth and an attention to detail which will win for it the admiration of all who see it. The whole of the figures are life-size. The prevailing colour is a rich, deep ruby-red, diversified with the delicate half-tones of which Burne-Jones is so fond.

BRADFORD.—The new chapel which is Mr. Walter Morrison's gift to Giggleswick School, and of which the memorial-stone was laid last Thursday, occupies an imposing site on a knoll of millstone grit that rises steeply above the school buildings. Owing to its position, it will be a conspicuous object from the surrounding country in nearly every direction. The plan, which is unusual, consists of a Latin cross, with a dome over the crossing, surrounded at the four angles by turrets, which are crowned by small cupolas. The choir is placed under the dome, and the shallow transepts contain each a gallery, that in the north transept being intended for the organ. The school will occupy the nave, which is lit by a

lofty clerestory, and has a narrow and low aisle on each side for access to the pews. The materials will be chiefly the local stone of various kinds, including a black limestone, which will be used in bands or chequers with the lighter coloured masonry. The dome will be of concrete, with a wooden covering, laid with sheet copper, and it is to be surmounted by a stone lantern and a cross of gilded metal, resembling those on Oriental churches. The principal dimensions are:—Length, 101ft.; breadth of transept, 54ft.; of nave, 46ft.; height of dome above the floor of nave, 85ft.; and above the vestry floor, 92ft. The plan shows seats for 344, with a good deal of free space. The architect is Mr. T. G. Jackson, R.A., and the work is being carried out under his direction, without a contractor, by Mr. Evans, his clerk of works. The chapel will be heated with hot air by Messrs. Haden, of Trowbridge.

DUNDEE.—The notable block of buildings which has been erected in Albert Square, Dundee, by the Prudential Assurance Company Limited, is now all but completed. The greater part of the structure has been let and occupied for several months, but the chambers of the Company, from the lavish nature of their equipment and decoration, are only now emerging from the hands of the contractors. The building will rank as one of the architectural features of Dundee, and it goes a long way in enhancing the appearance of the best built quarter of the city. Prepared in the offices of Messrs. A. Waterhouse and Son, New Cavendish Street, London, the designs have combined the most modern ideas with a refined artistic taste, and the result, as seen in the finished structure, is a building which up to the present time is unique in the Architecture of Dundee. The building is four stories in height, with sunk mezzanine floors, and the design is handsome and elegant. The material used in its construction is red Dumfriesshire stone mixed with terra-cotta bricks, while Peterhead granite has been freely employed with excellent effect upon the ground floor. On the left is the main entrance, leading to the principal staircase, which gives access to the upper floors. Entering by a handsome carved oak door with ornamental hinges, one finds himself in the porch, from which, on the right, swing doors lead into the vestibule, and thence through other swing doors into the general offices of the Prudential Company, while ahead it passes into a vaulted corridor leading to the staircase and the sunk floor. The general office is lofty and spacious, and is lighted by large windows in Albert Square and McIntosh's Close. The walls have been treated in faience—a finely tinted glazed tile—which beginning at top with a blue-green cornice and frieze passes through deepening shades of yellow and brown, until on the floor level it has become a chocolate colour. Two large fireplaces with elegant overmantels, also carried out in faience work, are prominent features of the room. The design of the ceiling is hexagonal, and decorated in light tints to correspond with the colours of the walls. The floor on the public side of the counter is of mosaic laid by Italian workmen, as is also the floor in the vestibule, porch and corridor. In immediate connection with it are the manager's and assistant manager's rooms, separated from each other by walnut screens. The decoration of both is similar in style to that of the large office, and there cannot be the slightest doubt that these three chambers form the most artistic suite of offices in the city. The vestibule and porch are also treated in faience, while the dado of the corridor is of the same material. The corridor is lighted at the far end by a lantern, beneath which is a pretty little alcove for the accommodation of plants or statuary. Ascending the main staircase, the first stop is the mezzanine floor. The first and second floors are let as offices of two and three rooms, all the apartments being finely proportioned, well lighted, and provided with every convenience, while the top flat is set apart for the caretaker and for store rooms and other purposes. Many of the details of construction are new to Dundee, and must readily be recognised as improvements upon

former methods. The fireproof safes, for instance, are constructed in the walls of the corridors, one being provided for every large office. The sanitary accommodation is of the most approved type. Each flat has its range of lavatories, with tiled walls and mosaic floors. By the adoption of Boyd Wilson's fire-resisting floors, the danger from fire is reduced to a minimum. The lighting is done by about 130 incandescent electric lamps of 16-candle power each, introduced on the new interim-conduit system; and the heating is provided by fireplaces in every room. The stair wall is entirely lined with cream-coloured tiles. The contractors for the work were as follows:—builders, D. and A. Powrie; joiners, John F. Shaw and Son; plumbers, William Mitchell and Son; plasterer, James Laburn; slaters, Ramsay and Reid; painters, P. and A. Davie; electric light installation, bells, telephone, and window blinds, J. Pullar and Co.; faience work, Burmantofts and Co. Ltd., Leeds; mosaic work, Ebner and Co., London. Mr. T. M. Ponton has discharged the duties of Clerk of Works.

GLASGOW.—Messrs. Doulton and Company, of London, have just completed some very extensive alterations on the sanitary fittings of the Central Station Hotel, Glasgow, for the Caledonian Railway Company. These include the entire reconstruction of the entresol floor lavatories and the restaurant lavatories. They have also constructed on the entresol floor a new ladies' cloak-room and lavatory. The floor, walls, and ceiling are tiled with the firm's patent key-back tiles, the roof being panelled, and the floor in mosaic. The closet rooms are finished entirely in dark, fumed mahogany, highly polished, while the divisions are of marble, the lower section being of Bardillo marble, and the upper section of white veined marble. The closets are of Messrs. Doulton's well-known "Simplicitus" type, the cisterns being encased in mahogany. One very noticeable feature about these is the entire absence of noise when flushing, a desideratum brought about by a simple but most ingenious arrangement. The lavatory basins, which are the firm's "Waverley" pattern, are finished in rouge royal marble, and the hot and cold supply valves are on their self-closing principle.

LEICESTER.—The opening of the new school in the Newarke, built by the Corporation for the carrying on of technical and Art teaching in Leicester, took place a week ago. The building has a frontage of 215ft., and is four storeys high. The Architecture of the building is treated in a free Renaissance style, the general character being influenced by the large windows which are requisite for teaching the various subjects, especially those of drawing and modelling. The materials for the facing are Ellistown pressed bricks, with Portland stone dressings, the roof being covered with Westmoreland slates. The general construction of the work is of the soundest description, fire-resisting materials having been used for the whole of the corridors and staircases; also the three lower floors. The lower ground floor is chiefly given up to the staple trades of the town. On the ground floor are arranged two lecture rooms and four classrooms, which are available for the teaching of technical, commercial, and science subjects. It may be mentioned that the corridors leading to the various class-rooms and workshops have been made wide enough to facilitate their being used for the purpose of exhibiting objects in connection with the various subjects taught. The two upper floors are devoted to the teaching of Art, the first floor to elementary subjects, and the second to the advanced. The elementary shading-room is a spacious apartment placed in the centre of the building. There is also provided a spacious room for teaching architecture and building construction. At the south angle is placed the Art lecture-room; the floor of this gradually rises in order to give every student an unobstructed view of the models or lecturer's blackboard. At the north-west end of the building there are three rooms arranged for the modelling department, all of which have glazed brick dados 5ft. high. The second

floor contains the antique room which occupies the centre position, and is divided into three divisions by screens with curtains over same, each space having a large single window well above the floor. A spacious painting-room, also divided into three divisions, is provided, and rooms for needlework classes, and carving. A short flight of stairs gives access to a conservatory placed at the top of the building. This will be found a useful adjunct to the School of Art for the purposes of drawing from plant forms, which will be a great aid to design. Nearly the whole of the fittings of this building have been specially designed by the architects, the contracts for these having been chiefly carried out by Messrs. T. and H. Herbert, and Messrs. J. C. Kellett and Son. The electric and gas lighting has been carried out by the Corporation, under the able supervision of Mr. A. Colson. The heating and ventilation of the building has been carried out by Messrs. Ashwell and Nesbit on the "Plenum" system.

LOUGHREA.—The foundation-stone of the new cathedral at Loughrea was laid last Sunday. The new cathedral will be one of the best equipped churches in Ireland. The plans were prepared by Mr. Byrne, architect, 20, Suffolk Street, Dublin, and are, in the opinion of experts, exquisite in design, and well suited to all the requirements of a cathedral church. £20,000 is needed to build the church.

MIDDLEWICH.—On Saturday week at Middlewich, the foundation-stones of new technical schools and a free library were laid. The building, which occupies a site presented to the town by Sir John Brunner, is admirably designed, and is intended to commemorate the Jubilee. Provision is made for the teaching of chemistry, science and Art subjects, shorthand, wood carving, typewriting, cookery, dressmaking, &c., while a well-appointed library and reading-room will be provided.

PLYMOUTH.—A new colossal statue of our Lord, which was to stand within a richly carved niche of St. Peter's Church, has come to grief. The new work has been designed, thoroughly in keeping with its immediate surroundings, by Mr. Geo. Fellowes-Prynne, and during the past week members of the staff of Messrs. Harry Hems and Sons, of Longbrook Street, Exeter, in whose studios the sculpture and its accessories were carried out, have been engaged in its erection. On opening the large case containing the statue, it was found that in transit over the railway it had come to hopeless grief, being broken in twain, the damage being quite past remedy. A new statue—a replica—will have to be made, representing a labour and serious delay of several months. The damaged statue was a powerful example of the sculptor's craft. It represented a figure of our Lord, some 8ft. high, carved, like the niche, &c., in finely grained Caen stone, from the far-famed quarries in Normandy.

RATHMINES.—The Church of Holy Trinity, Rathmines, has recently undergone considerable structural alterations and improvements. The mural decorations of the chancel, which have been executed by Mr. Clarke, of 33, North Great George Street, are treated in decorative ashlar, with deep frieze and string-coursing borders, of bold and effective design. The lower portions of the walls are done in decorative arcading in rich colour to correspond with marble reredos. The panels of the arcades are treated in a conventional style of imitation drapery, which has a very pleasing effect, and harmonises with the surrounding work. The dado is done in a deep shade of bronze green, surmounted with a bold and effective castellated border on an old gold colour ground. The ceiling is in panels, filled with a rich floral design, on a cream-colour ground, having medallions with emblems and monograms in the centre of each panel. The mouldings are picked out in rich colours and gold. The marble panelling which traverses the chancel at the rear of the communion table has been carried out in the early pointed Gothic style. The bottom plinth is of St. Anne's marble, the base course on same being

of "Rouge Rozal" richly moulded. On this sits a range of panelling, the styles or framing being of Sicilian marble, tinted a Sienna colour, and the spaces are filled with Galway green marble. The string course is of moulded alabaster. The upper stage consists of arcading in alabaster supported on pillars of "Galway green" and "Sienna" marbles alternately with moulded bases and foliated capitals in white Sicilian marble, having a background of "Rouge Jaspe" marble enclosed in a moulded and cusped Sicilian frame; a richly-moulded cornice in alabaster surmounts the whole. It may be noted that the "Rouge Jaspe" panels have been specially selected, and that panels of this material and size have not previously been executed in this country. The erection of the marble work was entrusted to Mr. Smyth, of Great Brunswick Street. The stained glass window in the east has been designed in the fifteenth century English period. The window has a rich pictorial effect without in the least interfering with the brilliancy of the glass, which is so much prized, and which places so high a value on ancient work of this class. The glass used is antique and pot metals from the best makers, and bears evidence of careful selection. Mr. Charles J. Tegart, of the Bank of Ireland, has very generously presented a stained-glass window for the southern transept. The window consists of four lights, 13ft. high, with diamond-shaped tracery above. The lights contain nearly life-sized figures of the Evangelists, in very rich and brilliant colours, the faces especially being masterpieces of the glass-stainer's art. The upper portions of the lights are filled with canopy-work, while in the bases are introduced the emblems of the Evangelists. The artists are Messrs. Mayer and Co., of Munich.

ST. ALBANS.—The foundation stones of the Wesleyan new church have been laid. The design for the new building is that of Messrs. Gordon, Lowther, and Garton, of Bloomfield Street, E.C., and a very useful chapel will be built. Its style will be Gothic of the fifteenth century period, and although some alterations in form will be made, which more properly pertain to the nineteenth century, yet it will have not an inartistic appearance. It is to have a double gable at the end in Marlborough Road, with a tower of considerable height between, and here will be the main entrance into the chapel itself. A schoolroom is to be attached in keeping with the Architecture of the rest of the building, and there are several vestries at the rear. The structure is being built of red brick with stone facings, and is 70ft. in length, and 50ft. wide. Internally there is to be a gallery running along the three sides of the building, and this will accommodate 368 worshippers, whilst on the floor there will be room for 600. At the back of the pulpit there is to be a recess for an organ and the choir. Artificial lighting will be by electricity.

TRURO.—The High School for Girls was recently opened by the Bishop of the Diocese. In appearance, the school is of Elizabethan character, having at the north-east corner a battlemented tower. The windows have mullions and transoms, which, like all the dressings, are of Cornish Mabe granite. The walling is of squared Plymouth limestone. There is little ornamentation; the inscription (Luce-Majistra) in a scroll over the main door, the conventionalised lily or fleur-de-lis, which forms the terminal on each of the stepped gables, and also some panels, are, however, all sculptured in granite. The architect was Mr. E. R. Robson, F.S.A., London. The contract has been carried out by Mr. John Collives, Truro. The granite has been supplied and carving executed by Mr. C. W. Andrew, of Penryn.

The Hungarian Premier has received a Royal letter ordering the erection of monuments to personages who figured prominently in Hungarian history in former times. The completion of the monuments will take several years.

Views and Reviews.

TWO BOOKS ON PRICES.

When technical works have reached their second and third editions there is rarely much for the reviewer to say about them, and this is the case with the two little works, "Estimating" and "Repairs," now before us. They have been known for a great many years, and have become the standard books of reference for pricing in detail, showing not only the cost of each item in a building when completed, but how this is made up, going into such minute details, for instance, as, when pricing a staircase, to take the cost per foot super of the risers and treads, and adding to this for the planing, rounding the edge of treads, the moulding under, glue blocking, bracketing and fixing, carriages and fixing, putting together, and profit. The value of the work is thus at once apparent, and the whole scheme is excellently devised and carried out. Many will say that the allowance for profit is low, being at the rate of ten per cent. throughout, but it is deliberately stated, and must be remembered by all using the books that the prices given are for close competition work in London, and must of course be varied in each case, according to circumstances, especially where local conditions prevail. Both books should be in the hands of everyone who has to do with pricing builders' work, and, taken with the above reservation, should prove of constant service.

"Estimating," third edition, 6s. 6d.; and "Repairs," second edition, 3s. 6d. By George Stephenson. Batsford. 8vo.

MODERN OPERA HOUSES AND THEATRES.—VOL. II.

We have received selections from Vol. II. of "Modern Opera Houses and Theatres," by E. O. Sachs. On reviewing the first volume we expressed our opinion of the general arrangement of the book, and the care and labour expended upon its production. This volume seems to be in every way worthy of the first. Vol. I. was devoted to theatres showing Teutonic influence in their conception, and it was the intention to entirely devote this one to those showing Latin influence. But the author holds that there is little to be learnt from the more recent structures conceived under this influence, so he has divided this volume into two parts; one dealing with examples in France, Italy, Moraco, and Spain, the other dealing with Austria, Germany, Great Britain, Greece, Holland, Roumania, and Switzerland. Attention is drawn in the introduction to the fact that certain Continental countries, in their enthusiasm for a suitable framing for their plays, even go to the extreme of attempting such exact distinctions as the definition of a Palace of Art and a Temple of Art; but the author holds that it appears almost trivial to English eyes when such fine distinctions become the matter of controversy, seeming to consider that the English is a practical race, and that "the practical man is not apt for fine distinctions." When he says that the excessive attention given to such artificial distinctions distracts the architect, and even leads to regrettable technical omissions, we are unable to follow him, and for this reason: that we think such distinctions are not artificial, except to those who understand nothing by them. Neither can we see why the designer, in insisting on the exact shade or nuance of expression which he wishes to convey, should necessarily be distracted thereby from technical necessities. The author asks: "What, for instance, is the value of a well-known Austrian critic's opinion, that the grand 'Hofburg' Theatre at Vienna should be classified as a Temple of Art, when, on the other hand, we have the lamentable fact that the acoustics of the auditorium are defective and the sight-lines unsatisfactory?" The Austrian critic might reply that his opinion had precisely the same value as if these defects did not exist, that they had nothing to do with the case—that a building might be a Temple of Art, as distinct from a Palace of Art, though its

acoustics might be defective or its sight-lines unsatisfactory. That a sonnet might be in the Shakespearian, as distinct from the Italian manner, though it had technical defects of rhythm or metre; that a coat might be cut in the London mode, as distinct from the Parisian, even though it did not fit; and that it is generally more profitable to the critic to call attention to the peculiar characteristics and delicacies of expression in any work of Art—which are apt to be generally overlooked—than to the defects which are palpable to everyone. The principal feature of this volume is the work of Mr. Charles Garnier—the Opera House at Paris and the Casino Theatre at Monte Carlo. The Opera House, as the author remarks, has been so exhaustively dealt with already that there is little information to be added to that already public; so no attempt has been made—most wisely we think—to challenge comparison with “Le Nouvel Opéra de Paris.” We cannot help thinking that, as regards this building, the author has been a little unfortunate in his choice of some of the illustrations. The photographic view of the main façade is taken from a point of view from which the building was never intended to be seen, and which does not show it off to advantage. The two wings and background being entirely blotted out on the photograph, gives the building a shorn and lost effect, which is not happy. The print too, being rather dark, somehow suggests a rather gloomy and sombre effect, which is very far removed from the real character of this building. The geometrical drawing of this front though excellent—with the possible exception of the absence of joint lines—from the point of view of the “practical” man, who wants to measure heights and adapt features and arrangements, is yet, as an artistic representation of a work of Art, hardly up to the level which the general high excellence of the work demands. It would, indeed, be a triumph of draughtsmanship to produce a geometrical drawing which should express the peculiar beauty and *verve* of this building, and we doubt whether anyone but a Frenchman would do it; but it surely might have been possible to have produced a drawing in which the sculpture was not quite so feeble, in which the columns were all the same size, and stood centrally over their bases and under their capitals. We are aware that to draw a row of classic columns with distinction and style is an achievement—perhaps impossible to anyone not brought up to it. The side view and the interior of this building are most admirable; the lower part of the main staircase, not being so familiar to us, is especially welcome. Admirable also are the views of the Casino Theatre at Monte Carlo, and its characteristics, as distinct from an ordinary theatre, well insisted upon. As giving an idea of the scope of this volume, we may mention the Court Opera House at Vienna, and Theatres at Prague, Palermo, Geneva, and Zurich, all of which are dealt with from the point of view of technical excellence. Here we think the author speaks with confidence and knowledge, though we cannot always follow him in his general remarks. On reviewing the first volume, we mentioned our dislike upon finding the letterpress divided into two columns by the illustrations, making it necessary for the eye to jump across from side to side in an irritating manner. We like it no better in this volume, where we find it in the description of the Paris Opera House, though we notice gratefully that in general it has been avoided. But when we have had our little grumble and said our worst, we are still left with a keen sense of admiration for the scope and purpose of this book, and for the manner in which it is being carried through; for the labour involved in the collection of so vast a store of information, and the discrimination shown in its selection. It is to be hoped that every library—it is too much to hope that every architect—may place this truly monumental work on its shelves, where it may be readily accessible to every student.

“Modern Opera Houses and Theatres.” By Edwin O. Sachs, Architect. Volume II. Published by B. T. Batsford, High Holborn, London. 1897.

SOCIETY MEETINGS.

The Glasgow School of Art.—The students of the Architectural Department this year were fortunate in having an opportunity of spending the annual autumn holiday in the English Borderland, a district the natural beauties and the historical associations whereof make it attractive and interesting to the architect, as well as to the ordinary tourist. Its history dates back to the time of the Romans, and the members of the party had an excellent opportunity of examining the remains of the forts of Agricola, and the best-preserved parts of Hadrian's great wall across the island, under the leadership of Mr. J. Pattison Gibson, the well-known Hexham antiquarian. The party left Glasgow for Carlisle on the morning of Saturday, 25th ult., and, on arrival, proceeded to the Cathedral, where sketching and photography were engaged in. In the afternoon train was taken to Naworth. By the kindness of the Earl of Carlisle the party was permitted to view Naworth Castle. Before proceeding to Hexham, which town the party made its headquarters, a visit was paid to Lanercost Priory. On Sunday afternoon a drive was taken, under the guidance of Mr. Gibson, through a most picturesque district. After passing the famous Roman Station of Cilurnum, and the modern residence of Chesters (from the hand of Norman Shaw, R.A.), Chollerford was reached. The remains of the Roman bridge were visited, and the homeward journey resumed, passing on the way Halton Tower, Aydon Castle, and the village of Corbridge, with its interesting church. Early on Monday morning the excursionists visited the Abbey Church of Hexham, and, later in the day, took train to Bardon Mill.

Glasgow High School Building Construction Students.—The High School Building Construction Students, to the number of seventy, on Saturday week visited the People's Palace, situated on Glasgow Green. The building comprises a double building—one, in stone, intended for the reception of pictures, sculptures, and museum purposes, and the other, in glass, for a winter garden and musical promenade. The portion which forms the frontage to Monteith Row is of three stories. On passing into the entrance hall, which is arcaded in stone, rooms branch right and left, intended for recreation and reading respectively, access being also gained by two doors to winter garden. The main staircase here leads to the first floor, which is of one apartment the full area of building, wherein the museum exhibits are to be displayed, while from this floor two separate staircases lead to the second floor, where the pictures and sculptures are to be placed. This floor consists of three apartments, the central one being under the dome, and lit therefrom, the other two being also top lighted. The whole of the walls in this building are lined with wood almost to the ceiling, which is of plaster. This wood is for the purpose of facilitating hanging pictures, &c. The winter garden, which, in addition to the other doors, is also entered from three separate points, is wholly of iron and glass, and abuts on the front building. Flower beds are to be arranged round the sides, the most of the enclosed space being floored with wood. The heating is by low-pressure hot water, a connection being also obtained for front building, while the lighting is entirely by electricity. The exterior presents a unique appearance owing to the amalgamation of the two structures. The façade is ornate and of a free Renaissance character, the end wings being surmounted by pavilion roofs, while the central feature consists of a dome which surmounts and dominates the structure. The total cost of the structure will be about £25,000.

Society of Engineers.—An interesting visit was made by a party of the members of the Society of Engineers, a week ago, to the Royal Arsenal, Woolwich. The visitors were conducted over the various departments comprising the Royal Laboratory, the Royal Carriage Department, and the Royal Gun Factories, in each of which they inspected the various operations.

Trade and Craft.

STATION EXTENSION.

The great station of the Niagara Falls Power Company is being extended 286ft., making its total length 426ft., which will accommodate ten of the 5000 horse-power units, three of which are already in place, and seven more contracted for, the Westinghouse Company supplying the generators, and the I. P. Morris Company the turbines, as before.

NEW METHOD OF COLOURING GLASS.

M. Léon Léal has brought out a new method of colouring glass by covering it with silver salt and heating it 500deg. Centigrade. On cooling it the glass is found to be tinged. When seen by light passing through it, the glass is yellow, and it is blue when seen by reflected light. Salts of gold, iron, copper, and other metals also stain glass in this way. It is possible to produce pretty decorations by the process.

ALLEGED INSECURE RAILWAY VIADUCT.

At the Penge Petty Sessions, the London, Brighton, and South Coast Railway Company was summoned with respect to its viaduct carrying the traffic to and from the Crystal Palace over the Beckenham Road, Penge, which was alleged by the district surveyor to be a dangerous structure.—Mr. Godfrey, from the Solicitors' Department of the London County Council, said the Bench would recollect that when he applied for the summons a fortnight since he stated that the Company denied that the bridge was in a dangerous state. There had been a great deal of correspondence on the subject, and he was now glad to report that the railway authorities were doing what was necessary. The work was of two kinds. There were superficial defects in the brickwork, and extensive cracks in the main arches. The first branch was well in hand, and the cracks would be taken in hand at once.—The case was adjourned for three months.

MUNICIPAL ENTERPRISE AND ELECTRIC LIGHT.

Municipal trading in the electric light business seems to be uniformly successful. St. Pancras, like Brighton and other places where similar installations have been established, claims to have made substantial profits. In the North London district the net result of the six months' trading ending June 30th last, after meeting all payments of instalments of loans and interest, was a profit on the Regent's Park station of £2040 2s. 9d., and a loss on King's Road station of £739 15s. 9d., to which was added the deficit of £800 12s. 7d. in December last, leaving a profit balance carried forward on account of both stations of £499 14s. 5d.

THE NEW GRAND CENTRAL RAILWAY.

During the past month excellent progress has been made with the Southern divisions of the Grand Central Railway. Of the forty-one miles north of Rugby to the Metropolitan Junction at Quainton Road, the earthworks are now almost completed. Practically all the viaducts have been finished, and the large bridge near Rugby, which crosses the Birmingham and Oxford Canal, is proceeding apace. The Catesby tunnel, over 3000 yards in length, has been entirely completed. The laying of the permanent way is also rapidly proceeding, while the stations at Rugby, Brackley, &c., are approaching completion.

THE PATENT GULLY CO. LTD.

It is well known that the above Company's Crosta patent surface water gullies are designed to prevent deleterious matter entering sewers, and also to seal sewer gases under all conditions; and further that the gullies fulfil their purpose very effectively. In noticing the Company's exhibits at the recent Health Exhibition, however, we inadvertently stated that in the use of the Crosta “deleterious matter can pass into the sewers.” Obviously an all-important “no” had been omitted.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BARRY.—For building fifty-two cottages and twenty villas, for the Barry Windsor Building Company, Limited. Mr. A. M. Leon, architect, Central-chambers, Working-street, Cardiff. ... £18,944 Fred Robbins ... £14,070 W. H. Ingleson ... 15,180 Cadwallader & Hock-ridge ... 13,990 D. Thomas and Co. ... 15,170 Oliver Purnell ... 14,200 [All of Cardiff.] *Accepted.

[Architect's estimate, £14,780.]

BOLTON.—For sewer, forming, &c., Auburn-street (Contract No. 799), for the Corporation. Wm. Pollitt, Pool-street, Bolton. Scheduled Prices.

BRIGHOUSE.—Accepted for the erection of iron foundry, brass foundry, offices, &c., Perseverance Brass Works, Brighouse, for Messrs. T. Lister and Co. Messrs. Sharp and Walter, architects, 32, Bradford-road, Brighouse. Quantities by the architects:—

Masonry.—John Hardy, Hove Edge ... £1,130 0
Joinery.—Wm. Halliwell, Brighouse ... 210 0
Plumbing and Glazing.—A. L. Waddington, Brighouse ... 89 0
Plastering and Coopering.—J. Barraclough, Brighouse ... 93 13
Slating.—James Smithies, Brighouse ... 111 15
Ironfoundry.—James Mackrell, Elland ... 61 5
Iron Roofing.—Robert Hird, Shipley ... 245 0

BROMLEY.—For road-widening work and building a retaining wall in the Beckenham-lane, for the Urban District Council. Mr. Stanley Hawkins, surveyor:—
Mowlen and Co. ... £267 E. P. and Sons ... £805
T. Lansbury ... 864 J. Stockwell, Bromley* 774
Clift Ford ... 820 D. Brewer ... 386
*Accepted.

BROMLEY.—For sewerage and surface-water drainage, Southborough-road, and Crown-lane, for the Urban District Council. Mr. Stanley Hawkins, surveyor:—

Contract No. 1.
Peill and Sons ... £964 Clift Ford, Harlesden* ... £905
T. Lansbury ... 940 D. Brewer ... 850
*Accepted.

Contract No. 2.
T. Lansbury ... £1,810 Peill & Sons (accepted) £1,239
Clift Ford ... 1,243 D. Brewer ... 1,173

COLD ASHBY.—For the erection of a class-room at the Board school, for the School Board:—
J. A. Johnson ... £116 10 John Vesty, Cold Ashby (accepted) £99 10 6

LARNE.—For rebuilding business premises, for Mr. Patrick Gingles. Messrs. E. and J. Byrne, architects, 4, Waring-street, Belfast:—
James Finis, Main-street, Larne ... £800

LONDON.—For building boundary walls, and laying out exercise ground at the Hackney Union Infirmary, for the Guardians of the Poor of the Hackney Union. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C. Quantities by Mr. J. R. Stamp, Liverpool-street, E.C.:—
Barrett and Power ... £5,300 Messrs. S. R. Lambie
W. J. Davenport ... 4,572 & Son, Rhyll-st., Ken-
W. Shurmer ... 4,539 tish Town (accepted) £4,073
Clift Ford ... 3,990
S. Liddiard ... 3,900

LONDON.—For alterations and additions to premises Nos. 178 and 179, Blackfriars-road, S.E., for the Christ Church Library Commissioners. Mr. Arthur W. Tribe, architect, 120, Clapham-road, S.W.:—
W. E. Hill ... £1,451 Hoare and Sons, Black-
Geo. Newton ... 1,932 friar's-road (accepted) £1,890

LONDON.—For the erection of four houses and workshops Vallance-road, Bethnal Green. Mr. Charles Legg, archi-
tect. Quantities by Mr. W. Hawker:—
S. Salt ... £4,250 Geo. Barker ... £4,030
H. Dearsley ... 4,215 J. Howlett and Son ... 8,950
W. Gladding ... 4,159 Coussell Bros. ... 3,893

LONDON.—For additions to mineral water factory for Messrs. Batey and Co., Limited, Dulwich Works. Mr. F. A. Powell, architect:—
Wm. Smith ... £5,380 Peacock Bros. ... £5,231
H. Burman and Sons ... 5,315 Holliday & Greenwood ... 4,666
Wm. Hammond ... 5,303 Turtle and Appleton* ... 4,588
*Accepted.

LONDON.—For addition to mineral water factory, for Messrs. Batey and Co., Limited, Bow Works. Mr. F. A. Powell, architect:—
Wm. Hammond ... £285 Turnbull and Son* ... £272
*Accepted.

LONDON.—Accepted for pulling down and rebuilding the "Crown" public-house, for Mr. Frank Crocker. Mr. Chas. H. Worley, architect, 62, Welbeck-street, W.:—
J. Mansfield and Co. ... £16,598

LONDON.—For Drainage works, Orange Hill, Edgware, for Mr. W. Ruddock. Messrs. Pollard and Tingle, engineers, 31, Old Queen-street, Westminster:—
J. Dickson ... £262 14 F. A. Jackson† ... £214 0
C. W. Killingback ... 250 0 H. J. Crouch ... 249 7
R. W. Swaker ... 230 0 D. H. Porter† ... 197 0
H. Williams, Harpen-
den* ... 226 12 D. Brewert ... 136 10
*Accepted. †Withdrawn

LONDON.—For the erection of a bandstand and other works on the Boundary-street improvement scheme, for the London County Council:—
G. Sharpe ... £1,140 R. A. Yerbury & Sons ... £953
D. Gibb and Co. ... 1,084

LONDON.—For alterations at "The British Prince" public-house, Goldhawk-road, Shepherd's Bush, for Mr. William Acton, Mr. J. Henry Richardson, architect, 87, Finsbury-pavement, E.C.:—
Deduction if portion of granite is omitted and red Mansfield stone substituted.
Courtney and Fairburn ... £3,470 £69 0 0
Henley ... 3,587 90 0 0
H. and E. Lea ... 3,550 123 0 0
Eddie ... 3,247 80 0 0
Thos. Bendon (accepted) ... 3,126 127 7 6

LONDON.—For erecting six cottages on the Dorset Cottage Estate, Fulham, for Mr. Thomas Hoodless. Mr. F. W. Biggs, surveyor, 10, Clifford's Inn, Fleet-street, E.C.:—
H. and E. Lea ... £2,780 Randall ... £1,650
R. M. Heywood ... 1,812 Thos. Bendon ... 1,650
Holliday ... 1,740 Thorby (accepted) ... 1,440

MAILVERN.—For the erection of a tower to St. Matthias Church, Malvern Link. Mr. F. W. Hunt, architect, 30, York-place, Portman-square, W.:—
Stephens, Bastow, and Co., Ltd. ... £2,778 Broad ... £2,475
C. Hayes ... 2,677 Collins and Godfrey ... 2,420

LONDON.—For making up and paving Darlan-road (Sec. II.) and Ashcombe-street, and for pipe-sewer in Townmead-road, for the Fulham Vestry. Mr. C. Botterill, surveyor, Town Hall, Waltham Green, S.W.:—

Contractors.	Darlan-road.—Sec. II.				Ashcombe-street.				Townmead-rd.
	Road.	York.	Victoria.	Imperial.	Road.	York.	Victoria.	Imperial.	
	£	£	£	£	£	£	£	£	
Imperial Stone Company, Limited	—	—	180	152	—	—	160	139	—
Victoria Stone Company, Limited	—	—	228	201	—	—	205	189	—
Sidney Hudson	423	—	—	—	448	—	—	—	270
Edward Parry	317	—	—	—	350	—	—	—	155
R. Cosford	4,900	—	—	—	366	—	—	—	265
Joseph Mears	310	—	—	—	329	—	—	—	—
H. P. Greenham	310	—	—	—	370	225	—	—	—
B. Newell and Co.	340	241	—	—	431	—	—	—	188
Geo. Wimpey and Co.	429	—	—	—	390	—	—	—	175
Lawrence and Thacker	370	—	—	—	—	—	—	—	—

NORTHAMPTON.—For alterations to British schools, for the School Board. Mr. W. Hull, architect, 12, St. Giles'-street, Northampton:—
Wilford and Judkin ... £4,970 W. Beardsmore ... £4,846
Branson and Son ... 4,390 Geo. Fisher ... 4,830
R. Cosford ... 4,900 J. Garrett ... 4,777
Wingrove and Stanley ... 4,897 J. Dunkley ... 4,729
Sharnan ... 4,857 Woodford and Smith ... 4,725
H. Martin ... 4,850 Souster (accepted) ... 4,553
[All of Northampton.]

ORMSKIRK.—For the erection of new board-room and offices on land adjoining the workhouse, for the Guardians of the Union. Messrs. Willink and Thicknesse, architects, 14, Castle-street, Liverpool:—
F. W. Mayor and Co. ... £2,475 0 0 Geo. Woods and Son ... £2,170 0 0
Thos. Riding and Son ... 2,310 0 0 James Pilkington ... 2,090 0 0
J. Dilworth ... 2,310 0 0 Thos. Spencer, Aintree, Liver-
John Craik ... 2,239 10 0 pool (accepted) 2,095 19 6
Preston & Hirst ... 2,211 10 9

PENCOED.—For erecting a Chapel at Pencoed, for the Pencoed Congregational Church. Mr. D. Davies, architect, Pontyculun, Glam.:—
W. H. Ingleson ... £560 A. R. Meredith ... £425
Daniel Lloyd ... 455 C. H. Cooksley, Ponty-
John A. Morgan ... 446 clun, Glam. (accepted) 385

PETERSFIELD.—For the erection of new schools, Sheet, near Petersfield. Mr. H. T. Keats, architect, Petersfield:—
J. S. Kimberley ... £2,730 0 W. Mould ... £2,350 0
Gammon and Sop ... 2,400 0 W. Jenkins, Liss* ... 1,692 0
E. C. Hughes ... 2,395 17 *Accepted.

PONTYPOOL.—For erecting two dwelling-houses at Wainfell-road, for Mr. C. Foxwell. Mr. D. J. Lougher, architect, Bank-chambers, Pontypool:—
Baily Bros. ... £460
C. H. Hambleton, Asborne-road, Pontypool* ... 440
*Accepted.

PORT TALBOT.—For the erection of a school-room, boiler-house, &c., Grove-place, Port Talbot, for the Welsh Calvinistic Methodists. Mr. F. B. Smith, architect, Port Talbot:—
Rees and Co. ... £645 Jno. Davies ... £490
H. David and Sons ... 570 Leverston Bros., Aber-
Jno. Nicholas ... 518 avon* ... 475
*Accepted.

RIPLEY.—For the extension of school buildings. Mr. J. Pullin, architect, Ripley, Surrey:—
Drowley and Co. ... £1,011 0 J. Whitburn ... £790 0
G. Christmas ... 846 10 Fred. Hobbs, Witley* ... 699 0
*Accepted.

ST. ALBANS.—Accepted for heating and ventilating the Campfield Works, for Messrs. Orford Smith, Limited. Mr. G. P. Smedley, architect, 110, St. Martin's-lane, Charing Cross, W.C.:—
William Sugg, Limited, Westminster (including all labours) ... £895

SEAFORD.—For alterations at the sewage pumping-station and fixing additional machinery, for the Urban District Council. Mr. B. A. Miller, surveyor, 3, Clinton-place, Seaford:—
S. H. Berry ... £493 C. Morling, Seaford* ... £486
*Accepted.

SEND (Surrey).—For new residence and stabling, for Mr. T. Lucas. Mr. Hy. A. Whitburn, architect, 7, Broadway, Woking:—
G. Kemp ... £1,484
J. Whitburn ... 1,350
W. W. Gale ... 1,245
J. Pullen, Ripley (reduced and accepted) ... 1,000
Stabling and Greenhouse.—J. Pullen, Ripley ... 235

STRETTFORD (Lancs.).—For the supply of 50,000 agricultural 6in. drain tiles, 12in. long. Mr. Henry Royle, engineer:—
Hosea, Tugby, and Co., Ashby-de-la-Zouch*
Isaac Dixon
Islerwood Brothers
Silecroft Tile Company
John Wilson
Peter Bailey and Sons
Hall and Rogers
Buckley Brick and Tile Co.
Wm. Hill and Son
J. Woodward
Hannchwood Tile Co.
Jas. J. Lee
J. Duckett and Son, Limited
E. Morgan
*Accepted.

WEST HARTLEPOOL.—For the erection of house and shop in Collingwood-road, for Mr. A. M. Atkinson. Mr. J. I. Wilson, architect, West Hartlepool:—
Jas. Andrews ... £474 14 Brazell and Whiston £444 0
John Proud ... 463 0 S. and A. Swain* ... 425 0
*Accepted.
[All of West Hartlepool.]

WEST HARTLEPOOL.—Accepted for erecting the Middleton Church Schools and Mission Church, West Hartlepool. Mr. J. I. Wilson, architect, West Hartlepool:—
T. T. Watson ... £2,290 16 8

WEST HARTLEPOOL.—Accepted for erecting a villa residence, lodge, stables, &c., for Mr. William Roper, C.C. Mr. J. I. Wilson, architect, West Hartlepool:—
J. Bulmer, West Hartlepool ... £5,200

WEST HARTLEPOOL.—Accepted for erecting business premises, for Messrs. Carter and Co., of West Hartlepool. Mr. J. I. Wilson, architect, West Hartlepool:—
Jos. Howe and Co. ... £5,190

WEST HARTLEPOOL.—For the erection of St. James's Vicarage. Mr. J. I. Wilson, architect, West Hartlepool:—
H. Meredith, West Hartlepool ... £1,299 10 6

WISBECH.—For the erection of new offices at Wisbech, for Messrs. Ropkins and Company, Limited. Messrs. Langford and Ward, architects, Wisbech. Quantities by architects:—
Elworthy and Son ... £955 E. Girling and Co. ... £920
S. Hipwell ... 850 Bands and Son* Modified
*Accepted.

WHITEHAVEN.—Accepted for rebuilding No. 30, Lowther-street. Messrs. Moffat and Bentley, architects, Whitehaven:—

Mason's Work, Slating, and Plastering.
Jonathan Young, Catherine-street, White-
haven
Carpenter's and Joiner's Work.
Richard D. Metcalf, George-street, White-
haven
Plumbing, Glazing, and Gasfitting.
Henry Burns, Duke-street, Whitehaven
Painting.
John Brown, Scotch-street, Whitehaven
Steel girders, wrought and cast iron work, and electric lighting not tendered for yet.

WOKING (Surrey).—For the erection of six cottages, Maybury Heath, for Messrs. Colyer and Colyer. Mr. Hy. A. Whitburn, architect, 7, Broadway, Woking. Quantities by Mr. W. E. Sedgwick, 37, Glenparke-road, Forest Gate, E.:—
Fyfield ... £2,300 Hooker ... £1,670
Ingram and Son ... 1,850 Martin ... 1,639
F. J. Kemp ... 1,750 A. A. Gale, Woking* ... 1,430
*Accepted.

WOKING (Surrey).—For the erection of three houses, York-road, Woking, for Mr. W. H. Last. Mr. Hy. A. Whitburn, architect, 7, Broadway, Woking:—
Ingram and Son ... £1,980 W. W. Gale ... £1,798
Hooker ... 1,965 Harris and Son ... 1,780
G. Kemp ... 1,920 J. Whitburn, Woking* ... 1,600
Martin ... 1,855 *Accepted.

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THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

NOTICE TO PROVINCIAL READERS.

The Editor of the "Builders' Journal" will at all times be pleased to receive and consider articles of a professional or technical character suitable for these pages. Papers read before Architectural bodies will also, if forwarded, receive careful consideration.

The Folk-lore of Architecture * certain hold which Architecture has upon

the popular mind and imagination is very probably due, to a large extent, to the dry and unpromising manner in which its theory has been expounded. Ignoring its essentially human origin, the lecturer and the archaeologist have between them resolved the history of the Art into an arduously tabulated system of dates. The century in which a building was constructed has been taken as the all-important fact to study and remember, instead of the purpose and requirements which called it into being; and the practice of applying the name of the reigning sovereign as a label for more easy classification has, little by little, been allowed to obscure and take the place of a patient inquiry into the customs and social status of the people, the real arbiters of the purpose and evolution of design in Architecture. The result has been to make the divergence in form and detail which obtains in the Architecture of differing countries and periods seem the result of caprice rather than, as it really is, a stern and logical adherence to the demands of necessity. The fickleness of a fashion has, to the uninitiated, been imparted to a growth based on deep conviction. Mr. Ditchfield has very properly determined not to be led into these errors. In his introductory chapter he strikes this keynote. "In the silent growth and elevation of the English people," says Green, the historian, "the boroughs led the way; unnoticed and despised by prelate and noble, they had all along preserved or won back again the full tradition of Teutonic liberty. In the quiet, quaintly-named streets, in town, mead, and market-place, in the lord's mill beside the stream, in the bell that swung out its summons to the crowded borough-mote, in merchant guild, and church guild, and craft guild, lay the life of Englishmen, who were doing more than knight and baron to make England what she is." The reader is at once aware that he is to learn of the mode of living of the English people. True to his purpose, yet with the true antiquary's amiable leaning to tradition and fable, the author tells us some of the legends which surround the origin of the earliest British towns—legends incredible and venerable, which make the founding of York and Carlisle synchronise with the reign of David in Judæa and the building of Solomon's Temple; but he does not forget to remind us that the early British historians were Kelts, and possessed of most

vivid imaginations. A reference to the Roman writers Strabo, Diodorus Siculus, and Cæsar at once dispels the visions of magnificence conjured up by the native writers. Nevertheless, it is with a positive regret that one is constrained to put aside, as spurious, the tale of such heroes as Prince Bladud, the founder of Bath, who, attempting to rival Icarus, and fly with wings of his own making to the upper regions of the air, fell and was dashed to pieces upon the Temple of Apollo in the city of Trinovantum (London). Coming to Roman times, Silchester, the Keltic Calleva, is taken as a typical example of the result of Roman tradition in building, modified by British race and climate. We are shown the political influence of Roman elegance; the tendency of the bronzes and sculptured marbles to impress the more primitive British, and incline them to respect and submit to their conquerors. It is an interesting link with the past to find that even now lines of the streets which intersected the old Roman town may be traced in the cornfields which have overgrown them. Still following the fortunes of Silchester, we see it taken and destroyed by the Saxons under Ella. The Saxons hated towns; under

In fact, every town was, as the author points out, a church town, while in the country the life of the people clustered round the barons' castles; of these there were 1115 in the reign of Stephen. Here is a description of London, written by William Fitz-Stephen, a monk of Canterbury, about the year 1174:—"The city, like Rome, is divided into wards, has annual sheriffs for its consuls, has senatorial and lower magistrates, sewers and aqueducts in its streets—its proper places and separate courts for cases of each kind, deliberate, demonstrative, judicial; and has assemblies on appointed days. I do not think there is a city with more commendable customs of church attendance, honour to God's ordinances, keeping sacred festivals, almsgiving, hospitality, confirming betrothals, contracting marriages, celebration of nuptials, preparing feasts, cheering the guests, and also in care for funerals and the interment of the dead. The only pests of London are the immoderate drinking of fools and the frequency of fires. To this may be added that nearly all the bishops, abbots, and magnates of England are, as it were, citizens and free-men of London, having their own splendid houses, to which they resort when they spend



WHITE HORSE INN, MAIDEN NEWTON, DORSET.

their dominion "York, Lincoln, Colchester, all the once flourishing centres of Roman life, tell of the same tale of mournful decline." The author finds time for numerous "snap-shots" of the life of this and other periods. There is a graphic little picture of a Saxon dancing girl impersonating the daughter of Herodias, trying to touch her heels with her head. We are shown the furniture as well as the buildings—the big Saxon bedstead, roofed like a house, the curling irons of the ladies, and even the rouge with which, like their sisters of old Rome and the present day, they heightened the charm of their dainty cheeks. It is interesting to compare the relative importance of the towns as shown by the number of the houses recorded in the Domesday Book of William the Conqueror. Norwich was by this standard three times as important as Canterbury, and Warwick stood far before Southampton; York was still the capital and seat of empire, as in Roman times; not until the twelfth century did London gain a hardly-bought supremacy. It seems almost incredible that at that time a quarter of the area of London should have been occupied by ecclesiastical buildings, and their courts and gardens. Within the walls, in an area no bigger than Hyde Park, stood one hundred and twenty churches, besides numerous monasteries, nunneries, and friars' houses.

largely, when summoned to great councils by the King, or by their Metropolitan, or are drawn thither by their own private affairs." Really this might be written and hold true of London in this year of grace and Jubilee:

'Tis curious through the course of years
How Clio's pen repeats her story.

One chapter is devoted to the tyranny of the guilds, a tyranny no less exacting and destructive of individual liberty than that of the modern trades union. When tiles began to supersede thatch as a roof covering, breaches of the rules of the guilds were punished by fines, payable in tiles; thus "one, John Bristol, was fined 2100 tiles for shaving seven persons contrary to order"—that is, 300 tiles for each offence. No doubt this severity acted as a strong deterrent to other offenders, but it entirely lacked the humour of the Gilbertian method of making "the punishment fit the crime." There is, however, more than a touch of Savoyard satire in the functions of the wakenman or Mayor of Ripon. "His duty was to walk through the whole city, and give a supper, and cause a horn to be blown by night during his year of office, at nine o'clock, at the four corners of the cross in the market place. One of the unpleasant duties of the Ripon wakenman was to make good any property stolen during his year of office, a duty which

* "The Story of Our English Towns," by P. H. Ditchfield, F.S.A. (London: George Redway, 1897.)

would make him very careful lest his city should harbour any thieves or vagabonds." The Saturday half-holiday dates from these early times. In the chapter on mediæval towns we meet Richard Whittington, Sir John Crosby, and other merchant princes, and get glimpses of their dwellings and ways of life, and even of the street pageants and processions, which did so much to give vivacity and colour to the life of the time. In the chapter on University towns there are some amusing pictures of the old University life. The students dined at ten a.m. and supped at five, and slept "four in a bedroom and two in a bed." Nor was this by any means their only hardship, for "such insolent pursuits" as bat-and-ball were things forbidden, as also dancing in chapel, or playing dice on the Cathedral altar, or marbles on the steps of St. Mary's Church. One cannot even imagine the horror of a modern proctor who should find it necessary to "take a man's name" for any of the offences. The extracts we have given will serve to show the reader the pleasant, almost gossipy, style of the book; he will find in it no illusive dates, no tedious or pedantic treatises of a technical kind. If, having read it, he should find himself but little more learned in the Architecture of English towns, he will certainly know more of the customs and mode of living which gave shape and vitality to that Architecture. He will see that those mediæval citizens—one may even say those Roman and Celtic citizens—were his own forefathers, in sympathy with him not only in blood but in thought and act; that they toiled and played, hoped and feared, just as he himself does, and that, had he lived amongst them, he could have sympathised with their difficulties and partaken of their pleasures as a member of the same family. That he should do this is no little step towards a more intimate acquaintance with the concrete forms in which their ideas were expressed, and for this reason, if for no other, we can cordially recommend this book to our readers. H. I.

AMONG the many theories framed to account for the disappearance of almost

every trace of the civil and domestic Architecture of the Egyptians, few, perhaps, are more whimsical than that explaining all on the supposition that the creative periods in the nation's history were followed by a period of unexampled commercial prosperity. The expansion of collective life under pressure of this prosperity brought with it successive alterations and improvements in the shell of the social organism; and that so swiftly that a century or so might have sufficed to efface the slow growth of unnumbered ages. And since the very essence of improvement is the substitution of the permanent by the temporary, each improvement in turn became more evanescent than its predecessor, until finally sand and desolation alone were left about the great granite tombs and temples to tell of the people who built them. Strained and fantastic as all this may appear, one cannot help feeling that there may be after all a grain of truth in it. The more so as we in our day see this same tide of commerce and enterprise submerging one by one all the familiar landmarks of the past, sweeping away with the cruel indifference of the ocean itself the storied stones, eloquent, as nothing else can be, of the history of the race. Not only our churches and cathedrals are modernised, made new and garish, but civic and domestic buildings alike of the deepest historic interest are swept away in the interests of business. Not a day passes without

news of the doom of some edifice of greater or less importance. The illustration given shows one of the most characteristic and beautiful inns of the West country, the sole feature of interest in the village it adorns; a link through long years with more prosperous times; a piece of real county history ungarbled by historians; the evidence of a time of artistic and creative activity; a document in masonry; a deed of gift to the present from the past. One would think that even as a commercial speculation it would be worth while to retain these features of interest in our barren towns. They would serve as a bait to the passing cyclist, or tempt the more leisurely horseman to linger on his way. In Yorkshire, the county of hard sense and real enterprise, this is continually done. One wishes the practice were universal. The inn, no less than the church or the cathedral, formed part of the life of the community it served. It was the common hearth of the village, the focus of interest, the centre of social existence for a wide circle of human beings. May we ask Messrs. Devenish, in the interests of disappearing England, to consider well before they decide to remove one of its most characteristic features. H. W.

ANTIQUITIES FROM WEST AFRICA.

AN exhibition of a remarkable kind has been arranged within the last few days at the British Museum in the Assyrian basement, a part of the building better known to those who attend lectures there than to the general public. The bronzes from Benin now shown have but little in common with the rest of the contents of the room, and their exhibition in such uncongenial surroundings is due only to the want of any other gallery in which a temporary display of this kind can be made. Two long screens in the middle of the room are covered with bronzes or brass plaques, about 300 in number, with figures in high relief, cast and slightly finished by tooling, which, both by the novelty of the subjects and the technical perfection of the work, are surprising evidences of the skill of the Benin native in the casting of metal. From time to time strange, fantastic carvings in ivory or in wood, and more rarely objects in bronze, have come from parts of the coast of West Africa, and all large collections have a few such pieces which could not be assigned to any of the known tribes. These we now know to have been made at Benin, as the numerous objects that have been brought home by officers from the recent expedition have precisely the same strange appearance, and are designed in the same fantastic style. Each of the plaques now shown is clearly

CAST AT A SINGLE OPERATION,

none of the details being subsequent additions, no matter how far they may project from the surface of the plaque. The only added work is the punched or chiselled pattern which covers the background of each plaque, and also in many cases patterns are punched on the figures themselves. There is only one method by which such castings can be made: that is the "cire perdue" process, which is very naturally regarded by artists as the best method of reproducing finely modelled work. To describe it in a few words, the design is executed in wax and then enveloped in fine clay or some similar body, the wax is then melted out of the hardened clay from an orifice made for the purpose, and the bronze is poured in to fill the space vacated by the wax. It will be obvious, therefore, that, if the wax original has any strong relief, or is under-cut, it is practically impossible to obtain more than one casting, as the mould has to be destroyed to obtain this. In this way were produced the finest bronzes of the fifteenth and sixteenth centuries in Europe, and to this day the Indian metal worker uses the same process in the manufac-

ture of armlets and anklets which can be bought for a few pence. That the Benin workmen were very expert in this method is fully shown by the perfection of the castings they produced. Those who cannot be enthusiastic about their Art value or their importance from an ethnological standpoint will still admit that as castings they leave but little to desire. The surface is generally clean, the lines are sharp and well defined, and the metal is used very economically, every projecting piece of any size being hollow to as great an extent as would be the case in a casting from Birmingham.

THE SUBJECTS REPRESENTED

consist principally of human figures, but there are also animals, fishes and plants, and in one case a building is seen. The human figures are mainly those of chiefs and their attendants, musicians, and others, some on horseback, others seated on stools, in all varieties of Benin costume and armed with sword and shield or with spears. But a far more interesting minority consist of men who are certainly not negroes, and in a few cases are without doubt Europeans in the costume of the sixteenth century. The best of these shows a European sportsman with his dog and match-lock gun, the match of which is shown in the casting with great clearness, as if the artist had realized how important a detail he had to represent. Another head of a European is clothed in the peculiar hood with a vandyked edge that had almost, if not quite, gone out of fashion in the sixteenth century. Apart from the panels entirely devoted to Europeans, many others, representing natives, have small figures or busts of Europeans as adjuncts, the long straight hair and civilized headgear being readily distinguishable. Another class of figures evidently belongs to some Semitic tribe, and may be intended for Arabs, though in one case at least the dress approaches very nearly to that of the European figures. All of these have conspicuously long and straight hair, and curious head dresses, which, with their weapons, may ultimately serve to identify them. Among the figures of natives are some which are deserving of special mention, notably one type in which the figure, which otherwise resembles the rest, has in place of legs two snakes, the heads of which curve upwards on either side, recalling in a striking manner the monstrous figures found upon Gnostic gems. That this has a special meaning there can be no doubt. It occurs upon several of the bronzes, and every

ONE OF THE MANY TUSKS

that formed a considerable part of the Benin spoils had the same figure repeated upon it in different ways. Whether there was at any time a link between the brutal savages of Benin and the Gnostics is a question not easy to solve. There appears to be no evidence to show what purpose these tablets served. All have been buried, the red earth still upon them shows this very clearly, and the nail holes in them prove that at some time they were fixed upon a wall; but whether they are a coherent series, or intended to be regarded as isolated pictures, there is nothing to show. The date of some of them may, of course, be considered as fairly certain. It is not probable that a figure of a European would be rendered with such an attention to detail at any period very distant from that in which the native artist saw such people. The date, therefore, of certain of the plaques is the sixteenth century, probably about 1560, and as the rest of the bronzes offer no very different characters, it is not unfair to assume that they also are of about the same period. But much remains to be made clear as to the origin of so surprising a class of objects, and a careful study of the designs may help considerably in this direction.

BRUSSELS is to have a permanent memorial of the Jubilee in the addition of a much needed chancel to the edifice of Christ Church. An inscription recording the great event of the Jubilee will be placed in the new chancel as the most appropriate memento of its elevation.

NORTHAMPTONSHIRE



BY HERBERT NORMAN.

TO the antiquarian, artist, or architectural student, no county of an equivalent size appeals more forcibly than that of Northamptonshire. To the latter it is essentially, with its many old houses and churches, a veritable Tom Tiddler's ground, where picturesque bits and useful detail may be picked up galore. Another and important consideration to the man who cannot afford much time or expense in travelling, is that these bits can be gathered frequently and easily from buildings closely grouped together. The sketch book that contains no reminder of time pleasantly and profitably spent in "the proud Beauty of the Midlands," as Northamptonshire has been so aptly termed, must surely belong to some architect residing far distant from the centre of England.

In an article of this length, and on such a county, much must be left untouched, whilst that dealt with can only be done so in a superficial and cursory manner. We have Burleigh House and the peasant Countess, well known to lovers of the late Lord Tennyson; Fotheringhay, and the ill-fated Mary Stuart; Kirby, and its associations with Queen Bess, the oppressor of the former unfortunate Queen; the buildings of Sir Thomas Tresham, of whom it is inscribed on Rothwell Market House, one of his works, "that he erected it as a tribute to his sweet fatherland and county of Northampton, but chiefly to this town, his near neighbour. Nothing but the common weal did he seek; nothing but the perpetual honour of his friends. He who puts an ill construction on this act is scarcely worthy so great a benefit. Anno Domini One Thousand Five Hundred and Seven." With such interesting personages and such buildings, to say nothing of the glorious churches of the Nene Valley, the readers of the BUILDERS' JOURNAL will understand my remark about being superficially treated; that it is not from dearth of subjects, but owing to limitation of space. Therefore, commencing with the county town, famed for its shoes and shoemakers for many years, the first object that would have presented itself (were it not now entirely demolished) to the visitor arriving by the L. & N.W. Railway would have been the old castle, situated formerly just outside the station gates, thus proving its right to be considered the godparent of the more utilitarian and less artistic successor, the Castle Station.

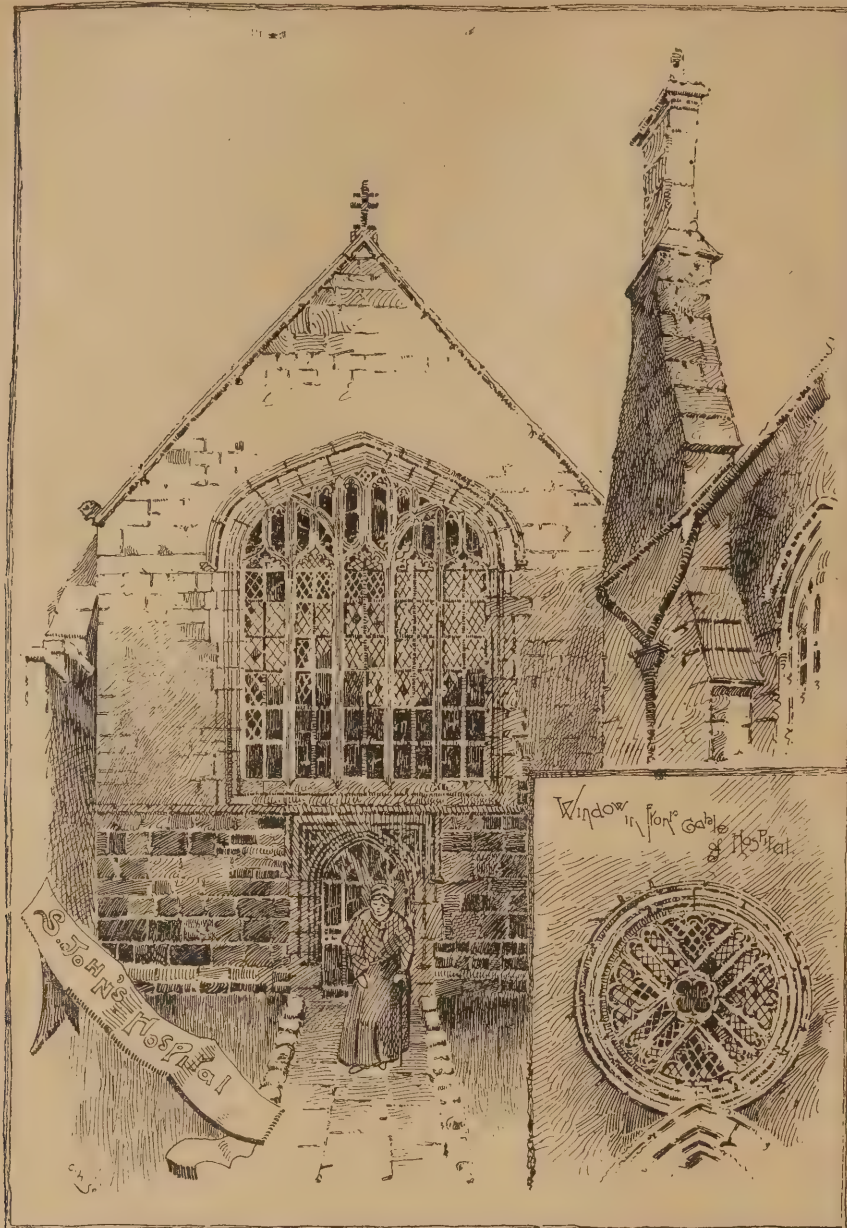
The Castle is described in the old records, "that it standeth hard by the west gate, and

hath a large keep. The area of the residue is very large, and bullwarks of yearth be made afore the castel gate." It was built by Simon de St. Liz soon after the Norman Conquest, and was the Council House to which Thomas à Becket was ordered to appear to answer the charge of contumacy and such others as might be made against him. All that remains of it now are a few of the old stones which formerly sheltered kings and nobles, but which, now built into a gateway, serve the same office to the proverbial blind man and loafers found hanging around the entrance of a station yard.

Walking a distance of about 300 yards, we find on our right one of the best specimens of enriched Norman architecture in the whole country, the Church of St. Peter, supposed to have been erected by one of the Norman lords of the castle. It is absolutely unique, the interior possessing detail of exceptional interest, the caps being most curiously and grotesquely carved with the heads and bodies of animals. The tower arch at the west end and the arches of the nave arcade are elaborately enriched with the chevron moulding. Externally the church presents features of an equal interest, one curious feature being the cluster of semi-column-formed buttresses at the angles of the tower, each diminishing in size at each story. A few steps further up Mairfair, and upon the same side, one of the two picturesque old houses (and Northampton boasts but two) strikes one as worthy of inspection. This house, commonly, but wrongly, called Cromwell House, was originally of much larger extent than at present—in fact, it actually adjoined the churchyard of St. Peter. It was probably built by one of the Haselrigs about the sixteenth century to serve as a town house, which the landed proprietors built to serve as a resort during the winter. The frontage at present is about 51ft., half its former extent, and contains fourteen heavily mullioned windows and three dormers carried out on corbels, which form a picturesque group amidst their very nineteenth century surroundings. The present entrance is of a more recent date, and possibly takes the place of a projecting porch, as shown on the old plans. Internally (owing to the rumour having gained currency that the titles were lost, and thus being plundered of its wainscoting, &c.), it has little of interest, if we except five pieces of tapestry of the usual colour and type frequently met with in houses of this description.

Continuing our ramble up Gold Street, we find ourselves in the centre of the town, and at the junction of the four principal thoroughfares—namely, Abington Street, Gold Street, Bridge Street, and the Drapery. Taking the latter, its present appearance scarcely agrees with two descriptions formerly given by Dr. Conant, the then vicar of All Saints, on the occasion of the great fire which raged through the town in September, 1675, and the other by De Wilde in his "Rambles Roundabout." The former describes it (the fire) as having made a noise like thunder, to the terror of all those who were near the place (the Drapery). The latter, writing when the market was held here, says of it as being unique as it is lovely, the bright green limes of the churchyard beyond, on either sides lines of stalls of all fashions buried in greenery and flowers, reminding him of Amsterdam, and, further, he says "we jot down our impressions of this picture, because for aught we know this may be the last year of its existence." Could he view it now as we do, with its busy service of trams, its traffic, electric light, and large and attractive shop fronts, what a different picture it would appear to him!

Across the market square, one of the finest in England, and in the north-east corner, we find the other old house that escaped the fire. This, except for its quaint gables, has been so modernised and barbarously painted to need little description. It was probably built by Williams of Penryhn, as we find on the front a motto in Welsh, "Heb. Dyw. Heb. Dym. Dwya Digon," i.e., without God without everything, God and enough; the initials W. E. P., and date 1595, being placed by the side of the motto. Taking a straight line by this house we come at the top of Newland to the fine old church of St. Sepulchre, one of the four remaining round churches. Again we have to thank Simon de St. Liz for the round part, which he built upon his return from the Holy Land about the beginning of the twelfth century. The tower and spire of a date about the last part of the fourteenth century form a grand and imposing pile which is scarcely likely to escape the leaves of a sketch book. The last building of interest in the town to be noticed is that of St. John's Hospital, which is now situated about the middle of Bridge Street. Leland gives his description of it as follows: "This hospitale standith within the waule of the toune, a little above the south gate," and he surmises it to have been founded



by William St. Clere, Archdeacon of Northampton, who lived at the commencement of the twelfth century. The chapel is a plain hall, at the east end of which is a good Decorated window of three lights, and at the west, as shewn in sketch, we have a fine Perpendicular window, and finely panelled door beneath.

(To be continued.)

LAST week Messrs. Bell brought out Mr. Reginald Blomfield's book on Renaissance Architecture in England. The history is very profusely illustrated by reproductions of photographs and old prints, and original drawings by the author.

The building of the new offices of the Commission of Sewers is proceeding satisfactorily and rapidly, after many delays. It is anticipated that the new building will be ready for occupation early next year. The foundation-stone was laid in January, 1895.

The first portion of St. Gabriel's Church, consisting of chancel, morning chapel, vestries, and three bays of the nave, has been opened by the Bishop of London. The church has been built to supply the needs of a rapidly-increasing suburb, and will accommodate, when completed, 950 people. The design is in the Decorated style of Architecture, and the outside facing of the building is carried out in Bargate stone, and the interior is faced with red bricks. The architects are Messrs. W. and C. A. Bassett Smith and Mr. R. Philip Day.

LIMOGES PORCELAIN.

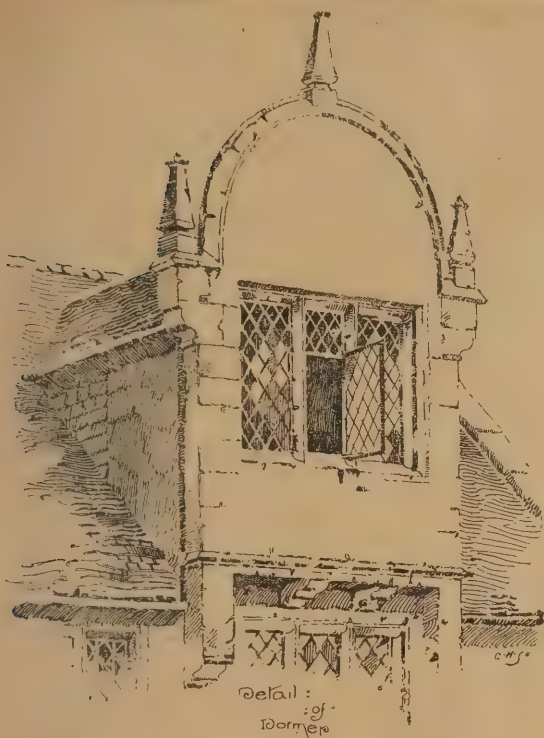
THE United States commercial agent at Limoges devotes a recent report to an account of the history and methods of manufacture of the famous porcelain factories at Limoges. The whole development of the industry, from the discovery of kaolin at St. Yrieix to the establishment throughout the world of the name and fame of Limoges ware, has taken place in the last hundred years. In hardness, translucency, and general suitability for table and decorative uses this ware is not surpassed, and it is so much appreciated in the United States that nearly three-fourths of the total products of the Limoges factories go there. Excess of water is extremely injurious in making the delicate paste used by Limoges potters, and the different grades in the ware are frequently produced by mixing cheaper and impure clays with the true kaolin. The glaze consists chiefly of feldspath and kaolin, many makers adding a certain proportion of ground china. One of the features of Limoges ware is a total absence of lead; the excessive heat required to fire hard china would make it useless. The process of manipulating the

clay and firing differs in France from that in other countries. British and American potters make a very hard bisque and a very soft glaze, while the French reverse the order of manufacturing. The Limoges potters have made great progress in the art of firing china, and the old method, so common in other countries, was abandoned ten years ago, on account of the high price of coal and the great loss in inferior goods. The old kilns were replaced by down-draught furnaces in two stories, the lower filled with glaze ware, the upper with bisque. The system (which is described in detail in the report) is said to be more economical, to regulate the heat better, and to prevent loss of it. The decoration of Limoges ware has been reduced to a very fine art. The process of lithographing and decalcomania have replaced all hand-painting except for rich decorations and for special purposes. Small manufacturers purchase the sheets already prepared for decoration, employ girls to put the pictures on the china, and then have the latter fired to set the colours. The large manufacturers, however, make their own decalcomania sheets, work out their own designs, and control the decorations themselves. The design is cut on stone, like a chromo-lithograph, each colour having a separate stone. The colour is sprinkled in powder on the paper after it has received the impression from the stone. Some time ago much alarm was caused at Limoges by lead-poisoning from the colours. But the powdering is done under cover, glass being placed between the face of the workman and the sheet on which he is working in such a way that, while he can see perfectly what he is doing, there is no danger of his inhaling the powdered colours. A new powder is now being tried, which dispenses with the use of lead altogether.

IMPROVEMENTS AT BATH.

THE Duke of Cambridge visited Bath a week ago for the double purpose of laying the foundation stone of the Victoria Art Gallery and opening new buildings which have been erected in connection with the bathing establishment. The Art Gallery is to form the city's memorial of the Diamond Jubilee. The building will be erected from designs by Mr. J. M. Brydon, of London. The site adjoins the recently erected Technical Schools, and will with them, the Guildhall, and the new municipal buildings, form a very imposing block occupying the whole of one side of the High Street. The addition to the bathing establishment forms a very important feature in the city, and is the result of a scheme first discussed by the City Council in 1892, partly because of the necessity of protecting the magnificent Roman bath from injury by exposure to the weather, and





CROMWELL HOUSE, MAIRFAIR.

the desirability of rendering the surroundings of that bath more presentable than they had been allowed to remain from the time of its discovery. The original estimate for the carrying out of this scheme was from £40,000 to £45,000, but this was subsequently reduced, and the work placed in the hands of Mr. J. M. Brydon, who is to be complimented upon the

HANDSOME BLOCK OF BUILDINGS

which are now ready for the convenience of the visitors to the bathing establishment. The scheme naturally divides itself into two sections—the new Promenade, with its subsidiary rooms, and the treatment of the old Roman bath, each distinct in itself, but in harmony one with the other. The Promenade consists mainly of a hall 70ft. by 39ft., ceiled over in the centre by a dome 55ft. high, and at each end semi-circular domes 40ft. high. These domes are carried on arches resting on ten columns of Pavonazza marble and gilded capitals, and in the spandrels of the centre dome are figures of the four seasons. This will in future be the concert hall, the old Pump Room being devoted to the water drinkers. Corridors, with a terrace overlooking the Roman bath, run all round the Promenade, and various rooms, such as ladies' parlours, gentlemen's smoking rooms, &c., open out from them. They are adorned with columns of Devonshire marble, and are paved with black, white, and red marble. The space under the building is to be used as a museum for Roman and other local antiquities, and forms a most picturesque hall. The building is lighted throughout by electricity, and there is a hydraulic lift descending to the basement of the old Pump Room for the convenience of invalids in chairs, who may desire to use the baths in that portion of the system. Externally the

GENERAL DESIGN OF THE BUILDING

is founded on the Architecture of the west front of the old Pump Room, the aim of the architect being to produce a simple and dignified building, depending for its effect on the harmony of its proportions, the refinement of its detail, and its agreement with the Architecture to which it forms an addition. Very much more difficult was the treatment of the great Roman bath. It was at first intended that it should be roofed in, but eventually it was determined to keep it open to the sky, and the model adopted was that of the atrium of a Roman

house. The bath is in a hall, some 110ft. by 68ft., and on each side of the water stand the remains of the piers which carried the vaulting of the roof. The external walls have been carried up from the Roman walls, and Doric columns placed on the piers round the bath carry a flat roof over the scholæ. Over the columns on the east, south, and west sides stand statues of eight of the Roman Emperors and Generals engaged in the conquest and occupation of Britain; they are the work of Mr. G. A. Lawson. The exterior treatment of the Roman bath is simple, nothing being introduced to mar the quietness of repose which should mark the surroundings of one of the most interesting remains of the Roman occupation in Britain.

SCOTCH PRISONS.

BY ALEX. BLACK.

A "NORTHERN ATHENS" daily had a paragraph referring to recent demolitions of some of these quondam prisons at Penicuik (*i.e.*, the hill of the cuckoo), an ancient burgh of barony ten miles south of Edinburgh. The paragraph stated that the demolitions had revealed walls 11ft. 6in. thick, which excited our curiosity in consequence of the known archaeological remains in the neighbourhood, some of which are referred to presently. The report of the discovery of such thick remains we fancied would have some curious or mysterious archaeological import. Their situation, however, on the North Esk river bank leads to the conclusion that they are more probably the remains of abutment foundations for ancient water-wheel power on the river. Ancient flour mills are known to have existed here, and, on the same site, paper mills were built in 1709, by the printer to Queen Anne. The paragraph also referred to the discovery of a method of "curiously simple and effective ventilation of the attached infirmary, that is worthy of the attention of students of sanitary science." The curiously simple and effective ventilation of the imaginative representative of our northern contemporary consisted of wooden boxes of 12in. by 4in. cross section. These boxes had one side perforated with auger holes, which were placed underneath the ceiling of the infirmary. There happens, however, to be no obvious means of egress for the foul air, or of ingress for pure air, except

through small, barred, glassless windows which were shut up in cold weather. It is to be hoped that there is a less dubious system of ventilation adopted at the present time for the military infirmaries of the country. The prisons referred to went under the name of Greenlaw, although some of the buildings were at Penicuik and others at Glencorse, each of which were some distance away from the Greenlaw Mansion, which was first converted to this purpose by the Government. The situation was selected because of the contiguity of the Glencorse military dépôt, drafts from which were utilised to garrison the series of prisons. The locality of these quondam prisons, which lies S.E. of the picturesque range of the Pentland Hills, possesses varied interests. Besides its being the first location of cotton mills in Scotland, it is the seat of the largest local aggregate of the paper manufacturing industry in the kingdom, and of the most extensive individual concerns in the country. The locality of Penicuik possesses a valuable fossiliferous limestone that is capable of taking the fine cut and polish of marble, also freestone and whinstone, or porphyritic greenstone. The latter is a volcanic rock, known petrographically as diorite, a crystalline granular compound of felspar and horn blends. Ironstone mining is an important local industry. The structural work and repairs of the paper mills employ a foundry and saw mill. Chalybeate and petrifying springs are plentiful. To the archæologist, however, the Penicuik district will afford much interest, as there are

INTERESTING OLD BUILDINGS AND RUINS

of several old castles, vestiges of Roman causeways, and encampments, towns, and villages. Penicuik House is a mansion of Grecian Ionic character, and contains a considerable quantity of Roman antiquities. Many of these are from Antoninus' wall, a Roman rampart from the river Clyde to the Firth of Forth, and also from the camp at Netherby, an important Roman station in Cumberland. Amongst the archaeological remains in the locality to be noted are the extensive ruins of Brunstane Castle. There is a large, strong fortalice of about the year 1580, thought to be the ancient habitation of the predecessors of the Earl of Dumfries. Terregles Tower occupies an eminence; it is said to have been the ancient seat of the original proprietor of the parish. Logan House, which shows remarkably thick walls, with small, narrow windows, and is associated with various ancient incidents, was a favourite hunting seat of the Scottish kings. The remains of old Ravensnook was a royal hunting box. All of the ancient ruins and buildings referred to were built of the stone found in the parish of Penicuik.



CROMWELL HOUSE, MAIRFAIR.

STUDENTS' WORK AT KING'S COLLEGE.

KING'S COLLEGE has long been known for the practical nature of its instruction, and its reputation will be, if possible, enhanced by this year's exhibition of students' work in the departments of Architecture and building construction.

For those who had not the privilege of visiting the exhibition on Thursday last, the names of Professor Banister Fletcher and his accomplished sons will be a guarantee that at least precept and, what we are told is better, example, are not wanting to the pupils who attend the classes here; if it must be said that this year has discovered no architectural genius, we may at least affirm that the results do credit to the excellent teaching.

In a report, which was at once modest and cheering, Mr. Fletcher gives an outline of the work of the classes during the past year, and is able boldly and successfully to compare it with its predecessors. There are two tests, he says, which may be applied to the results, and from both he emerges triumphant. The first test is that of the members attending the classes and lectures, among which may be mentioned the architectural studio and lectures on architectural history, established this year—of which more anon—building construction, and quantities. The attendance of individual students was this year ninety-one, showing an increase over last year of twelve, and over the season of 1894-95 of twenty.

To the above figures must be added forty-one students in the wood-carving classes, so that Mr. Fletcher's verdict of "thoroughly healthy" may be heartily endorsed.

The second test which Mr. Fletcher applies is that of results in examinations, and in this, perhaps the more severe of the two, the issue is no less satisfactory. Lack of space alone prevents us from giving the results in full. We need only mention that three appointments have been obtained as Government surveyors, and that no less than 87.5 per cent. passed the examination of the Surveyors' Institution. Success has been no less marked in the examinations of the Royal Institute of British Architects and Science and Art Department at South Kensington. In the latter they are able to show one honour and three advanced firsts.

In the City and Guilds Institution, again, the pupils are well to the fore with honours in more than one subject. In this second test, therefore, we may safely say the result does credit both to the pupils themselves and the staff of teachers, which includes, besides those we have mentioned, Mr. James Bartlett, M.S.A.

In the lectures on Architectural History, which are a new feature in the course of study, and are held in connection with the London County Council, Mr. Fletcher combines historical examples with a demonstration of their excellence and utility from the point of view of the practical designer, a system which cannot fail, in his hands, to be at once serviceable and fascinating.

The free scholarship, which is the gift of the Carpenters' Company, was won this year by Mr. A. C. Remnant, while Mr. C. J. T. Dadds proved an adversary of very nearly equal merit.

The drawings which were on exhibition, if not of any striking originality, show great care in draughtsmanship, the best foundation for the production of really good designs, which can only be the result of study and experience. Our central illustrations represent excellent specimens of measured work from the hand of Mr. Wiles, and in the text we have designs by Mr. Drake and Mr. John Gough for the same subjects—viz., a dormer window and a pair of wrought iron gates. Both are treated by Mr. Drake in a dignified yet simple style, and though Mr. Gough shows more spirit in the one, he is lacking in that quiet feeling which distinguishes his fellow-student's conception of the other.

Among others which were particularly noticeable, Mr. Zimmerman shows a good drawing of Norrey Church, near Caen, carefully executed, but some of his other drawings



DESIGN FOR DORMER. BY J. GOUGH.

are scratchy. With increasing confidence he will make a good draughtsman.

Mr. H. C. Bishop has some delicate pencil drawings of ornament, while Mr. Pain's drawings are careful, but are wanting in "cleanliness."

A very careful drawing is that of Beverly Minster, from the hand of Mr. W. G. Trew, his mouldings having all the character of the Early English period. Even better are his sheets of Gothic mouldings and details, including characteristic gargoyles of St. Andrew's Church, Heckington. He is inclined, however, to be finicking in small scale work.

A Norman door, by Mr. C. W. Beaumont, is carefully and accurately drawn, but his details show an extravagance in the use of lines, which will disappear with the study of good examples. Neat drawing is the chief point in favour of Mr. French's screen, but his ideas show little originality.

Very noticeable, too, is a collection of drawings and diagrams by Mr. Fletcher and Mr. Bartlett, the benefit of which will no doubt be fully reaped by the students.

While passing through the rooms we noticed in an unobtrusive position Mr. Banister F. Fletcher's delightful little drawing in chalk of a Norman cap, which is most effective.

Architectural and constructional models are plentiful throughout the building, all of the greatest use to the young student, including, as they do, representations of the best classic examples. In the studio, recently installed with the electric light, was shown a collection of drawings forming the probationary work for the Institute examinations.

Of these works Mr. E. F. Knight's drawing of classic ornament is remarkable for its accuracy and sympathy with the subject, while Mr. Bishop's study of architectural orders is no less deserving of notice. These latter drawings have gained the bronze medal, the award of which, we may assume, was by no means easy to decide.

The architectural side of King's College has been able to signalize this year in a truly remarkable and lasting fashion. By the munificence of the son, Mr. J. Oldrid Scott, F.S.A., the collection of drawings by the

celebrated Sir Gilbert Scott, have been presented to the College. This acquisition is due in no small degree to the energy of Mr. Fletcher and Mr. Weatherly, F.R.I.B.A., not the least gifted of Sir Gilbert's pupils. These drawings include works by the master hand, and also of his distinguished pupils, Mr. Street, R.A., and Mr. Jackson, R.A., and form a collection the value of which can hardly be overestimated. They were originally used to illustrate Sir Gilbert Scott's academy lectures, and have therefore proved in the past their value for the purposes of education.

The thanks of the College and the world of students in general are due to Mr. J. Oldrid Scott for again placing these designs within the reach of the rising generation, who cannot fail to profit by their study.

They will form, together with the drawings already belonging to Mr. Fletcher, and a smaller collection contributed by Mr. Weatherly, a collection which is unrivalled in any school of architecture.

The work of the College in the past is a guarantee of future progress and increased utility, and we are certain that as this institution gets better known among students, its benefit will be permanently and gratefully felt by the architectural profession.

THE site of Lord Carrington's demolished house at Whitehall is to be at once cleared for the erection of the proposed new Horse Guards and War Office departments.

THE Croydon County Council is about to apply to the Local Government Board for sanction to a loan of £40,355 for repairing, paving, and kerbing of certain roads in the borough.

ANOTHER attempt is being made to introduce Norwegian marble into this country for ornamental purposes. One of the largest clubs in Piccadilly has, it is said, already used it in considerable quantities.

THE Ottawa Government is inviting artists to send models of a Jubilee statue of the Queen to be erected on the Parliament terrace, and also of a statue of Alexander Mackenzie, the first Liberal Premier of the Dominion.

THE ART WORKERS OF T
CENTURIES.CHIPPENDALE—ARTIST CABINET-
MAKER.

IT is difficult to ascertain the origin of the use of furniture with any exactness. The earliest races, dwelling in the Orient, did not require furniture to any great extent. A lion's hide, or the skin of any other animal, thrown on a marble floor, sufficed for a seat by day and a couch by night. A similar paucity of furniture is found in Eastern dwellings even at the present day. Nevertheless, the ancient Egyptians had chairs and tables of good form and make, and to some degree the Greeks and Romans followed their example. Still, we are inclined to look for the true origin of furniture to the races inhabiting North-Western Europe—the earlier Germans, French, and English. The rigour and humidity of their climates rendered protection and comfort necessary, and where the Oriental could throw himself down on a skin, the Frenchman or Englishman, whose room had, perhaps, but a naked clay floor, cold and damp, required an elevated couch with some description of covering in the style of bed clothing. That pleasant poet, William Cowper, has sung in his "Task" the steps of the evolution of one piece of furniture—the chair. Allowing somewhat for poetical embellishment, there is little doubt that the successive steps by which, under a process of "artificial" selection, a three-legged stool became an arm-chair, are correctly detailed.

"Those barbarous ages past, succeeded next
The birthday of Invention: weak at first,
Dull in design, and clumsy to perform.
Joint-stools were then created: on three legs
Upright they stood. Three legs upholding
A massy slab, in fashion square or round.
On such a stool immortal Alfred sat,
And sway'd the sceptre of his infant realms:
And such in ancient halls and mansions drear
May still be seen, but perforated sore,
And drill'd in holes, the solid oak is found,
By worms voracious eating through and
through.
At length a generation more refined
Improved the simple plan; made three legs
four,
Gave them a twisted form vermicular,
And o'er the seat, with plenteous wadding
stuff'd,
Induced a splendid cover, green and blue,
Yellow and red, of tapestry richly wrought
And woven close.

* * * * *
"Now came the cane from India, smooth and
bright
With Nature's varnish: sever'd into stripes
That interlaced each other, these supplied
Of texture from a lattice work, that braced
The new machine, and it became a chair.
But restless was the chair; the back erect
Distress'd the weary loins, that felt no ease;
The slippery seat betray'd the sliding part
That press'd it, and the feet hung dangling
down,
Anxious in vain to find the distant floor.

* * * * *
"But elbows still were wanting; these, some
say,
An Alderman of Cripplegate contrived:
And some ascribe the invention to a priest,
Burly and big, and studious of his ease.
But, rude at first, and not with easy slope,
Receding wide, they pressed against the ribs,
And bruised the side; and elevated high,
Taught the raised shoulders to invade the ears.
Long time elapsed or e'er our rugged sires
Complain'd, though incommodiously pent in,
And ill at ease behind."

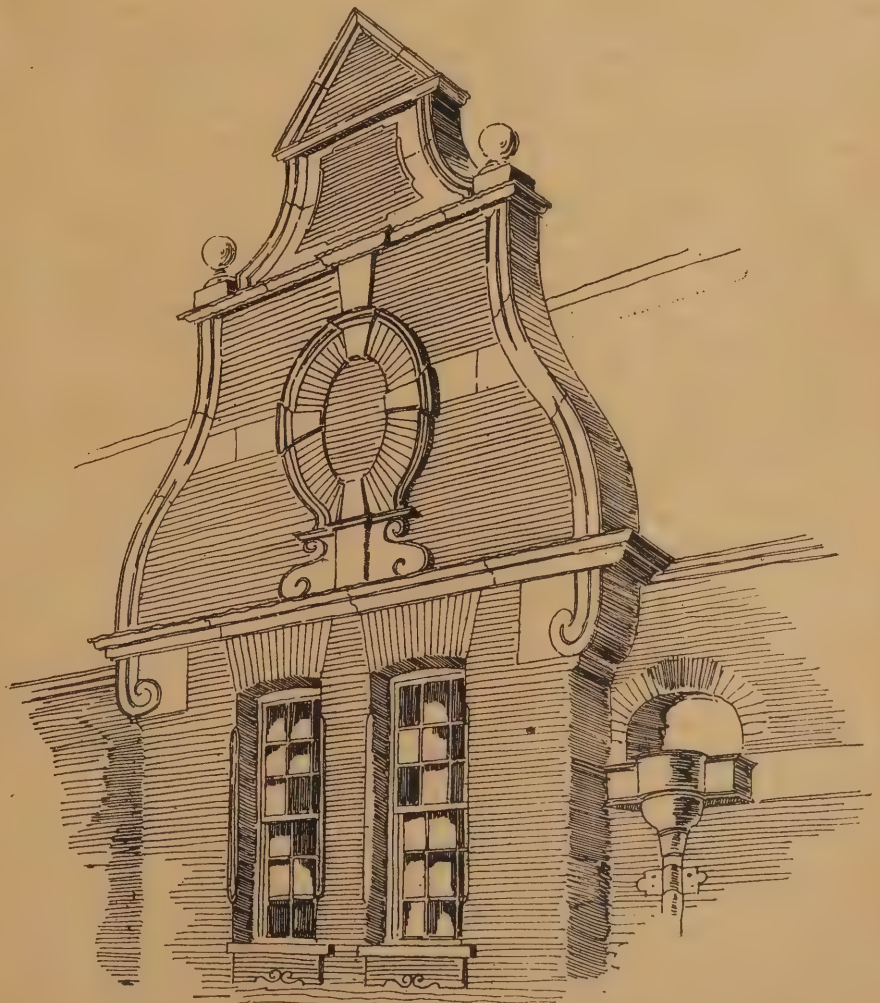
The furniture of the Middle Ages was excessively heavy and clumsy. If anyone desires to form a fairly accurate idea of the "run" or general style of it, he should look at the Coronation Chair in Westminster Abbey. Of this ancient piece of cabinet work a former Lancaster Herald writes:—"King Edward's chair, commonly called 'St. Edward's Chair,' is a very ancient chair of solid hard wood, with back and sides of the same, variously painted,

in which the Kings of Scotland were constantly crowned; but being brought out of that kingdom by the victorious prince, King Edward the First, in the twenty-fourth year of his reign, anno. 1296, after he had totally overcome John Baliol, King of Scots, it hath ever since remained in the Abbey of Westminster, and has had the honour to be the Royal chair, in which the succeeding Kings and Queens of this realm have been inaugurated." Although made for a Royal chair, it is certainly a rough specimen of wood-working. Indeed, it was not until the great revival period that really light and tasteful furniture began to be manufactured. The French cabinet-makers most certainly took the lead in the movement; but long after exceedingly elegant furniture had been produced by these, the English workmen were still content with their clumsy and heavy patterns. It was the subject of those few lines—of whom, by the way, exceedingly little is really known—who first gave to English cabinet-making the impetus towards artistic and tasteful models, which has still survived among admirers of old fashions and furniture and Art connoisseurs, and which is also the reason which induces me to consider Chippendale as a typical artificer, and one justly entitled to be mentioned here. The name of the founder of the furniture which still bears his title was Thomas Chippendale, and about the middle of the eighteenth century he is found established in St. Martin's Lane, London, as a fashionable cabinet-maker and upholsterer, that portion of London being more patronised by the *haut ton* than it is now. He shortly afterwards issued his celebrated and magnificent work, "The Gentleman's and Cabinet Maker's Director," which, rich in plates, has nothing to say of its author, and even now it is one of the most rare and valuable handbooks in the world. This magnificent work contains an extensive collection of his exquisite designs for furniture

and decorations of all kinds, the whole forming a grand storehouse, from which all subsequent Art-workmen have freely drawn. In fact, the young Art-worker or cabinet-maker cannot follow a better master, and this must serve as my excuse for penning these few lines.

W. N. B.

THE rebuilding of St. Michael's church tower, St. Albans city, which was pulled down some fifteen months ago to make room for a more imposing structure according to the scheme of Lord Grimthorpe, the well-known restorer of St. Albans Abbey, has now been completed. St. Michael's Church, built on the west side of the ancient St. Albans city, is nearly 1000 years old, and is one of the most remarkable ecclesiastical buildings in England by reason of its antiquity and associations. The foundations under the tower are purely Roman. Sir Gilbert Scott maintained that the church is the original Basilica of Verulam, altered for Christian worship, but records state that the Saxon Abbot Ulsenus founded it in A.D. 948. The massive piers, semi-circular arches, and almost complete absence of ornaments, point undoubtedly to Saxon origin; it is more ancient than any remaining part of St. Albans Abbey. In the interior were once large family pews, some with fireplaces and fire-irons in them all complete. The carved pulpit dates from the time of James I. Apart from all other sources of interest in this ancient church, one stands pre-eminent: it is a shrine, the "Stratford-on-Avon" of Baconians. The chancel contains a white marble statue of Bacon, Lord Verulam, and Viscount St. Albans. The great philosopher is represented seated in his Chancellor's robes. Not far from the church the interesting remains of Bacon's house may be seen. Inserted most peculiarly in the south wall of the chancel is a tomb said to be that of a Crusader.



DESIGN FOR DORMER. BY W. DRAKE.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

October 20th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

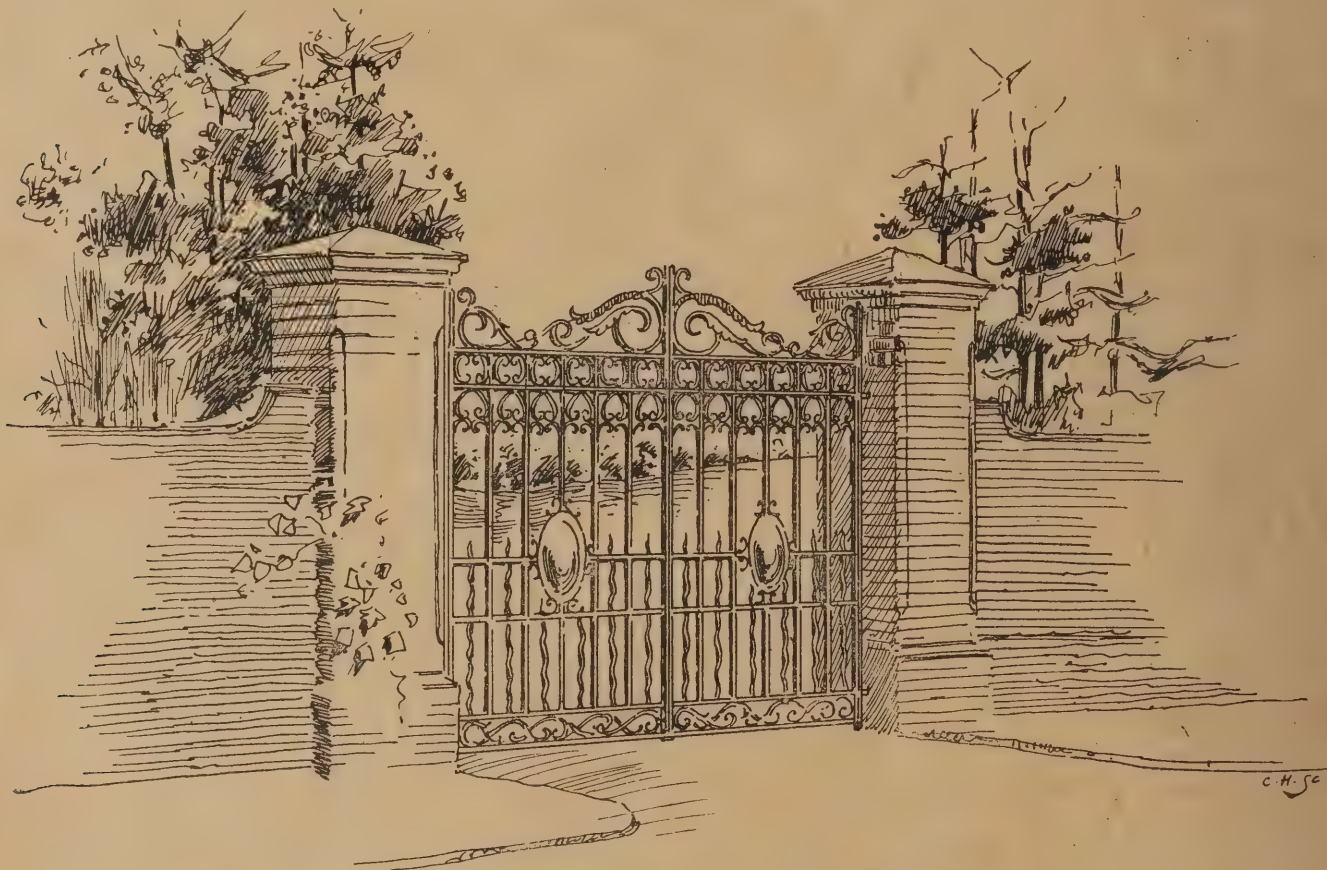
THE Broadway Theatre at Deptford is nearly finished. The builders are now completing

applause." We have still only too few statues that satisfy at once the artist and the general public, and only too many that ought to satisfy neither. But our sculpture has made immense strides of late years, and Mr. Onslow Ford is one of those to whom we are most deeply indebted for the change. When he, and others who are his worthy associates in craftsmanship and in aims, have laboured long enough, we shall be ripe for a revolt against the abominations of bronze or marble which still cumber the ground of the capital—to go no further. The Cobden statue at Camden Town is nothing less than a public calamity, as a sort of perpetual endowment of the degradation of public taste. The Burns, the Brunel, and the John Stuart Mill of the Embankment are nearly as bad. The Napier and the Havelock of Trafalgar Square are fit only for the melting-pot. They will reach it all the sooner for the elevation of public taste by such works as the one recently unveiled at Birmingham.

MR. ALMA-TADEMA, as one whose life is wrapped up in Art, was not slow to recognise that the London County Council, however prosaic may be the bulk of the work it is

the work of the School appears in the October number of the Architectural Review.

"THE Paris Charity Bazaar Fire and its Lessons," is the subject of the paper to be read by Mr. Edwin O. Sachs, before the Architectural Association, on Friday. The paper will deal not only with technical facts regarding the construction of the fatal building, and include particulars of the fire, but will be fully illustrated by views of the structure taken before and after the conflagration, copies of the contractor's drawings, and other details which Mr. Sachs has brought over from France. The policy of the architect in generally trying to oppose or avoid regulations governing buildings will be dealt with, and the policy of the architect in saving his clients a few pounds, and thereby incurring a moral responsibility of much of the annual loss of life, will also be treated of. Among those who have been invited by the Association to attend the meeting, with a view of participating in the discussion of the subject, are Mr. Thomas Blashill, the architect to the L.C.C.; Mr. Roberts, of the L.C.C. Theatres Committee; Mr. William Archer, the critic



DESIGN FOR WROUGHT IRON GATE. BY W. DRAKE.

the tower, with its copper dome, and the interior of the building has been handed over to the decorators, who have a small army of workmen engaged in fitting the fibrous plaster and other decorative work.

PLANS for the new Coronet Theatre, Notting Hill Gate, are completed. The building, which will have a continuous frontage of 130ft. to the High Street, will be constructed entirely in white stone, with a circular grand entrance at the corner, and surmounted by a tower capped (as in the case of Deptford) with a copper dome. The style is "Louis XVI.," and the building, there can be no doubt, will be a beautiful addition to the High Street. The shops now on the site will be cleared away early next month, and building operations will commence immediately after.

MR. ONSLOW FORD's statue of Dr. Dale was unveiled at Birmingham "with unbounded

called upon to perform, is entitled to respect for what it seeks to accomplish in the fostering of a love of things artistic among those who avail themselves of the educational facilities it affords. The Central School of Arts and Crafts in Regent Street, which is under the direct control of the Technical Education Board, has not long been in existence, but it has done enough to warrant the encomiums that fell from the lips of the distinguished Royal Academician on the occasion of the first exhibition of the summer works of the Art Scholars' Sketch Club. Art, sculpture, architecture, modelling, silversmiths' work, engraving, enamelling, chasing, bookbinding—these are among the things embraced in the scheme that elicited a tribute from Mr. Alma-Tadema, who urged the students whom he addressed to go on and seek guerdons in those realms in which they had chosen to walk, remembering always that "as the sun colours the flowers, so does Art colour life itself." An article on

as representing the public; and several of the leading Fire-Brigade Officers.

BLACKFRIARS BRIDGE is being re-painted after an interval of nine years. It is receiving a coat of purple oxide, while the decorative parts are being what is termed "mock-bronzed." By this term imitation gilding is to be understood. There are from sixty to eighty men on the work. The re-painting will take three months, and the astonishing quantity of paint used is twelve tons. The last two re-paintings were carried out by the present contractors, Messrs. Harrison and Spooner, in 1876 and 1888. The cost is borne by the Bridge House Estates Committee.

THE first of a series of stained-glass windows has been placed in the nave of the Royal Holloway College Chapel at Egham. The window has been executed from the designs of W. J. E. Reid, pupil of Sir W. B. Richmond,

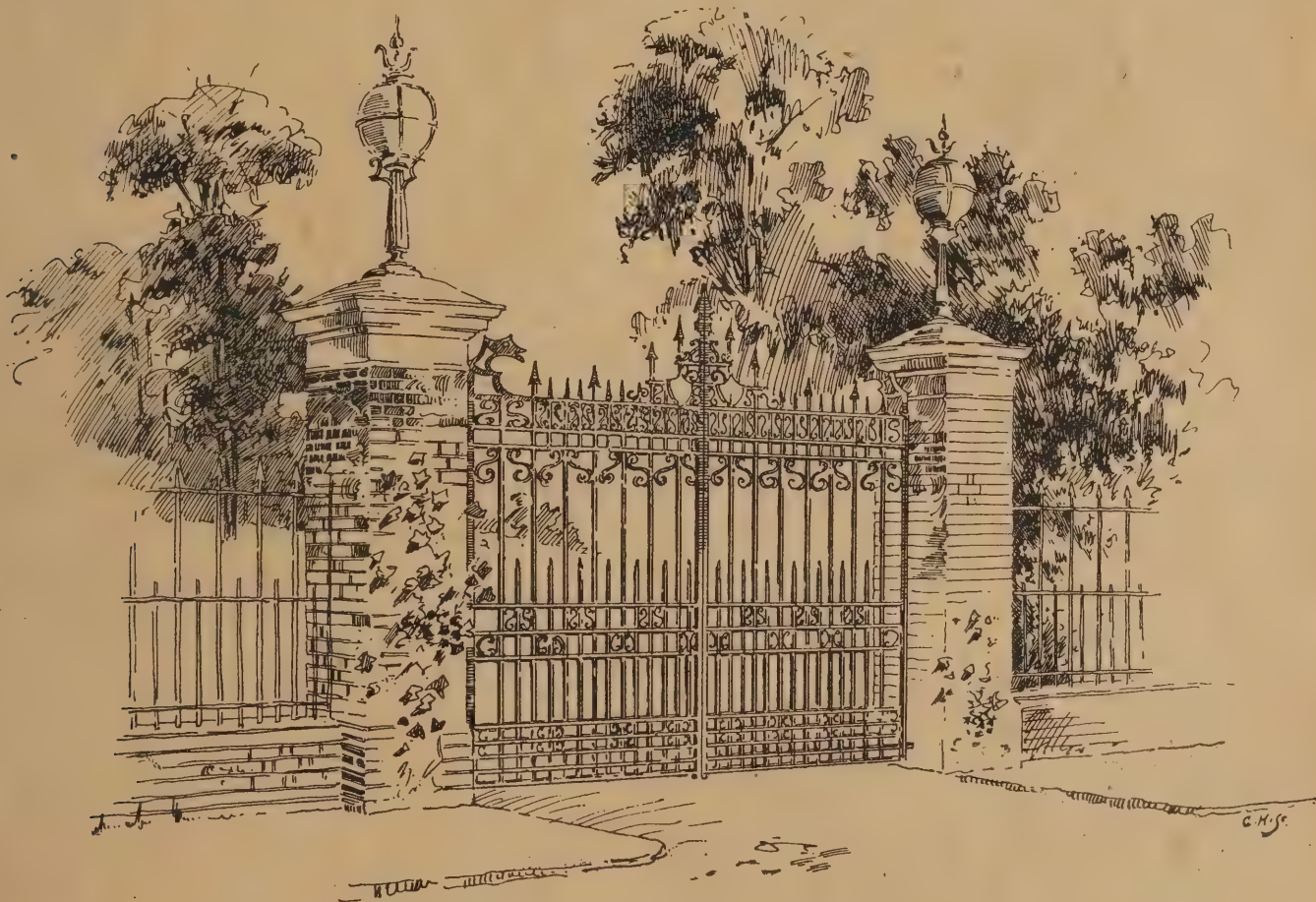
by Signor Gastano Meo. In the upper lights of the window two angels are represented with instruments of music in their hands, their faces looking to the east. St. Augustine, as the first Bishop of Canterbury, and St. Alban, the martyr of Verulam, are figured in the lower lights. The head of the former is a portrait of the late Archbishop. The bordering is a successful adaptation of the oak, while the lunette is richly decorated with olive. The effect of the whole window is rich and impressive both in design and execution.

BRITISH antiquaries who know Codrington Priory, near Berwick, will be glad to hear that its present owner has taken steps for the preservation of the ruins, which represent one of the most ancient monastic establishments in the kingdom. The monastery was established by St. Abb in the seventh century. The buildings were once of great magnificence and extent, but of late years they have become greatly dilapidated. In taking down a tower at the south-west corner some years ago a skeleton was found standing upright in a hollow of the wall.

note of colour in "Market Place, Laroche;" "Spring, Tangier," and "Country near Tetuan" are sincere as well as pleasing. Mr. W. Strang's "Cloudland," and "The Scour," sombre and strenuous in handling, are noteworthy. There are works also by Mr. G. F. Wetherbee, R.L., Mr. W. H. Bartlett, and other artists.

THE subsidence of a huge block of buildings in the City, owing, it is believed, to the tunnelling operations now being conducted by the City and Waterloo Subway Company, has drawn prominent attention to the dangerous side of the system of subterranean railway communication which is now being so actively prosecuted in the Metropolis. In the case under notice the settlement was trifling, but on investigation it was found that the course of the work underground was distinctly traceable for a considerable distance along the line of route by cracks in the buildings immediately above the tunnels. This is a matter of no little gravity. It may be, of course, that the precautions taken against subsidence have not been so thorough as the circumstances

water therefrom. We remember many similar instances. About thirty years ago the walls of a house in Old Broad Street were warped and cracked, necessitating considerable repairs, caused by some deep excavations that were made in the street for new sewers. A large house in King William Street was also considerably damaged by the works of the underground railway which runs from the City to Stockwell, and here and there along the route of this line similar damage could be seen to other property. The injury to the building in the present instance being checked, will, most likely, proceed no further. But now that London in future will, in all probability, be honeycombed by deep underground railways, the question is raised whether so many of the clauses in the Land Clauses Act should be expunged or amended in the Special Acts authorising such railways, and owners of houses on the line of route of these railways be liable, from time to time, to have their property taken or damaged without payment or compensation. We have always been taught, until the legislation of recent years, that a man's property in his land extends from



DESIGN FOR WROUGHT IRON GATE. BY J. GOUGH.

THE Clifford Gallery in the Haymarket, in addition to Mr. Dudley Hardy's drawings, has now a bright little collection of oils, prominent among which is Mr. Frank Brangwyn's "Waiting for the Fishermen," a group of figures on a pier-head. The day is boisterous and showery, with a "lumpy" sea, and the artist has painted the weather with the *verve* habitual to him. There is the right note of feeling in the attitude of the figures, and the truthful rendering of a class of subject of which Mr. Brangwyn has made himself a master inclines one to forgive a tendency to mannerism, perhaps a little too self-assertive. Mr. Aubrey Hunt's scenes in Morocco are crisp, and he has not yielded to the temptation of dealing in violent contrasts of light and shadow to which painters of sunny lands are prone. The "Sand Mill—Tangier" has an effective bit of wind swept sky behind a dark fringe of trees on an upland. There is a mellow

demanded, but it looks as if the authorities at St. Paul's Cathedral were not so very far wrong when they opposed the line from the City to Shepherd's Bush because they feared that it might disturb the foundations of the Cathedral. However that may be, the incident is disquieting, and it will probably have the effect of putting some check upon the enterprise of the company promoters who are intent on honeycombing the ground below the central districts of London with railways.

REFERRING to the threatened subsidence in the City, Messrs Norton, Trist, and Gilbert write: "Sir,—This fresh instance of damage done to property by underground railways should draw general attention to the unsatisfactory state of the law on this point as at present administered. The subsidence is no doubt caused by the weakening of the support of the soil by the temporary draining of the

the sky to the centre of the earth. Without passing any opinion as to how far it may be expedient to allow public bodies to acquire these powers in the public interests to the injury of the private individual, it surely should not be permitted for private companies for private gains to acquire or damage their neighbours' property without compensation. When each company appeals to Parliament, the public are strangely inactive in protecting their rights. It is only some such occurrence as above that, too late, opens their eyes."

MEMORIAL work is now one of the chief trades both in English and Foreign yards, and the mason gladly avails himself of any wrinkle to enable him to produce a fine finished piece of work. Perfect smoothness in a marble memorial is really the essential point; not only does the work show up better, but the material weathers better. Not many letter cutters

know the secret of finishing a leaded inscription. Emery dust and felt sometimes does wonders, but has the effect of darkening the marble; the latest and best method is really a very simple one. Instead of emery, try "Brookes' Soap" and felt. It will leave the epitaph in lead as perfect as possible, and the marble white and smooth.

THE secretary of the Central London Railway writes to say there are twelve miles of tunnelling to be completed in connection with the new Central London Railway, and of these over six miles have been excavated. The contractors are proceeding with the work at a satisfactory and exceptionally rapid rate.

ON Saturday week the Talycafn Bridge across the River Conway was opened. The newly-erected bridge, which takes the place of the ancient ferry crossing, dating back from early British times, has been a long-felt want. The new bridge is erected in the most picturesque part of the Vale of Conway. The length of the bridge between the abutments is 353ft.; each side span is 90ft. in length, the centre span is 150ft., and the lowest headway above high water is 18ft. There is also a land span of 20ft. over a public road on the Carnarvonshire side. The piers and abutments are built of limestone, backed with concrete. The columns are of cast-iron, filled with concrete. The width of bridge between parapets is 24ft. Under the footway are carried water-mains to supply Llandudno from Dilyn Lake. The bridge was erected from the designs and under the superintendence of Messrs. Dawson and Fyson, of Westminster, Mr. Richards being the resident engineer. In excavating the foundations of the bridge, an old copper token was found a few feet under the river-bed. This is really a token which commemorates the first iron bridge built in England, on the River Severn, at Colbrooke, and is dated 1779. It thus establishes a link between the oldest and the youngest metal bridges in England.

THE collection of Roman inscribed stones in the Hunterian Museum, Glasgow University, has long been renowned as throwing much light upon the history of the Roman occupation of Scotland. In the first half of last century many of the terminals, altars, and military landmarks found in the neighbourhood of the famous Wall of Antoninus Pius between the Clyde and Forth, were presented to the University, and deposited in the library. This collection has been gradually increased since its first formation, and it is now one of the most representative of its kind in this country. Dr. James Macdonald, F.S.A. Scot., is furnishing a description.

RUSKIN'S Oxford lectures on landscape, which are now about to be published for the first time, group themselves under three heads. They deal with outline, with light and shade, and finally with colour. It used to be said of Ruskin that he slept with £15,000 worth of Turners in his bedroom. Some of these are reproduced in the book, and it will have at least one sketch by himself. This is a drawing of the Gneiss Rock in Glenfinlas, done at the time Millais was painting Ruskin's portrait.

THE members of the County Council have before them for consideration this week the estimated cost of the improvements authorised by Parliament last session. These include the new street from Tower Hill to Prescott Street, for the better accommodation of the traffic over the Tower Bridge, which is estimated to cost £219,000, with a possible recoupment of £2500; the Holywell Street improvement, for which the estimate is £546,130 for property and £23,000 for work, making together £569,130; and the Tottenham Court Road improvement at Bozier's Court, which is expected to cost £52,000 for property and £1860 for works—together £53,860. These three improvements involve the question of "betterment," a contingency not taken into account in the estimates. In connection with the remaining four, the

question does not arise. They are the widening of the Goswell Road end of Old Street, which is to cost £193,000—for property £175,000, and for works £18,000, with a probable recoupment by sale of land of £29,500; the Long Lane and Tabard Street improvement in Southwark, which is estimated to cost £207,400, with a recoupment of £17,000, reducing the net amount to £190,400; the Battersea Park Road improvement, the estimate for which is £20,930, with a recoupment of £500—one-fourth the net cost of this (£20,430) will be paid by the Battersea Vestry; and the Holloway Road improvement, the net cost of which will be £8550, one-half of this amount to be paid by the Islington Vestry. Together the gross expenditure on these improvements is estimated at £1,272,270, and the net cost, deducting the local contributions, £1,198,665.

THE South Wales Art Society's autumn Exhibition is being held at Cardiff. A feature of the Exhibition is the remarkably large number of small paintings, ranging in price from 15 to 20 guineas, and these will undoubtedly demand a much more ready sale than the larger and more unweildly which on previous occasions have been more numerous in proportion to the total exhibits. This year the exhibits number nearly 500, and the most casual observer cannot fail to be impressed by the wonderful variety in subject that the paintings afford. No one will grudge Sir E. Burne-Jones pride of place. In one of the small rooms will be found some of his early work in pencil and crayon, and in the water-colour room will be found some more mature work that will stand long and careful study. "The Images in the Wall of Idleness" is in the artist's most characteristic style. The work is, of course, decorative, but it is pure Burne-Jones, and the figures of Hate, Felony, Covetousness, Avarice, Envy, and the rest stand forth and appeal irresistibly to the on-looker. Among other artists represented are Mr. Edwin Harris, whose fine picture, "The Crucifixion," will be found in the long gallery above the dais. Mr. Edgar Bundy, R.I., has a picture that is certain to attract a deal of notice, "Barnaby Rudge before the County Justices." Mr. R. Wane, Mr. Arthur Meade, R.B.A., Mr. E. W. Waite, R.B.A., Mr. Creswick Bodell, A.R.C.A., Mr. Hamilton Marr, A.R.C.A., Mr. Lionel Walden, Hon. Stephen Coleridge, Mr. George Cockram, Mr. W. Holman Hunt, Mr. Geo. Harrison, R.C.A., Mr. John McDougall, R.C.A., and Mr. Parker Hagarty are all represented, while Mr. Walter Crane shows a charming specimen of his quaint decorative Art. Mr. H. W. B. Davis, R.A., shows a delightful landscape, with cattle, entitled "The First Breath of Autumn."

MESSRS. MACMILLAN, the well-known publishers, are to leave their old address in Covent Garden in the course of a few days, and take up their home in a handsome new building, specially built with a view to their requirements. Situated in St. Martin's Street, a turning out of Leicester Square, the new building occupies the site of one of the old galleried inns, one or two examples of which are yet to be found in out-of-the-way corners of the metropolis. It stands in the centre of a neighbourhood to which many literary, artistic, and scientific associations cling. Almost opposite the main entrance of the building is the house occupied by Sir Isaac Newton between the years 1710 and 1725. Hogarth served his apprenticeship in a neighbouring street, and afterwards resided in Leicester Fields, nearly the only portion of which now remaining is the Square. Messrs. Macmillan's new premises make a handsome block, in the building of which due regard has been paid to artistic taste as well as to utility. Oak has been used to line the walls of the main rooms, such as the Board-room and the Directors' rooms, and the result is a suite of rooms of the most handsome appearance. Old-fashioned high mantelpieces, with great spacious fireplaces, are the features of the chief rooms, and the whole fittings give an idea of stately comfort. The character of the building may be imagined as one enters the door and finds a

wide main staircase of oak, lighted by means of a high window, which, with its stone mullions, iron casements, and leaded glass, might have done duty in some old English hall.

BERLIN proposes to erect a fine statue of Prince Bismarck on the Koenigsplatz, right in front of the Imperial Diet. The sculptor who has won the competition for the best design is Professor Reinhold Begas, the same artist who executed the equestrian monument to "William the Great." Professor Begas, freed from the Imperial craze of allegory, has produced, in this instance, a much simpler sketch for the projected statue than the ponderous and over-elaborated memorial of William I. Some time, of course, must elapse before the statue can be raised on the selected site.

THE art of casting bronze is very ancient; one cannot tell how ancient, though the bronze age appears to have been preceded by a copper age in Egypt, if not in other parts of the world. Casting bronze at a single jet, however, only dates from the end of the seventh century. An earth mould was used for large bells, a sand mould for general work, and a wax mould for fine work. Sand is open to the objection that statues have to be moulded in pieces and fitted together. Wax, on the other hand, permits of casting in one piece, but is expensive, and has other great drawbacks. Quite recently, however, M. Le Bourg, a Frenchman, has introduced a gelatine mould which appears destined to supplant wax.

THE Corporation of Birkenhead, having recently acquired the site and ruins of the ancient Priory within the borough, is now taking all necessary steps to preserve the remains of the buildings, and to arrest the obliterating hand of time in its endeavours to sweep away the very interesting relics. The work of repair has been placed under the supervision of the venerable antiquary, Mr. Edward W. Cox. The members of the Historic Society of Lancashire and Cheshire were recently conducted over the ruins by Mr. Cox. Among the discoveries which have recently come to light are several fragments of delicately carved stonework, some beautiful tiles with an incised vine pattern, and many fragments of ancient glazed pottery, jugs, drinking cups, and jars, some stone mortars for grinding corn, and an interesting Norman tombstone, which shows signs of having been successively used as the base of a stone screen, as a more recent tombstone, and finally as part of the pavement. A gold coin of the reign of Edward III. has also been found, and a Nuremberg token. One of the most interesting discoveries has been a carefully built and concealed recess running down in the thickness of the wall to the rock below, where, on some light sand, lay the skeleton of a goat in perfect preservation. This is surmised to have been "a foundation sacrifice," in accordance with the old custom.

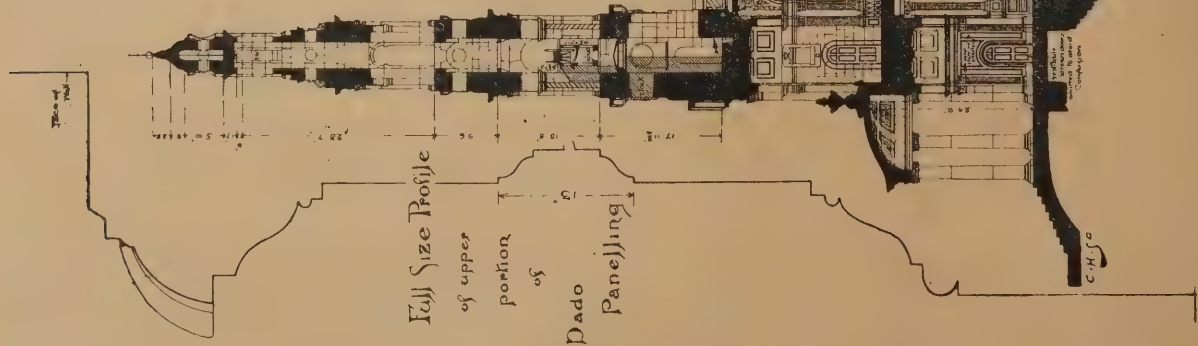
THE annual distribution of prizes and certificates awarded to the students attending the plumbing classes at the Regent Street Polytechnic during the season 1896-97, took place the other evening. The teacher's report was of a most satisfactory character. One hundred and forty students were on the class roll, and of seventy taking part in the examinations fifteen had passed in honours (one obtaining a medal and money prize), fifteen in the ordinary grade, and eighteen in the preliminary section. Eight students, moreover, had gained scholarships presented by the Technical Education Board of the London County Council. Sir Philip Magnus occupied the chair and distributed the prizes. He spoke of the value of the training afforded in the classes, which deserved the high appreciation of the public. If the British artisan maintained his present high degree of skill foreign competition need not be feared. He urged the students to pay very great attention to the theoretical portion of their work in order that the practical part might always show the highest standard of excellence.

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THE CHURCH of SAINT MARY-LE-STRAND

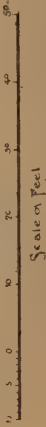
Drawing No 2.

LONDON

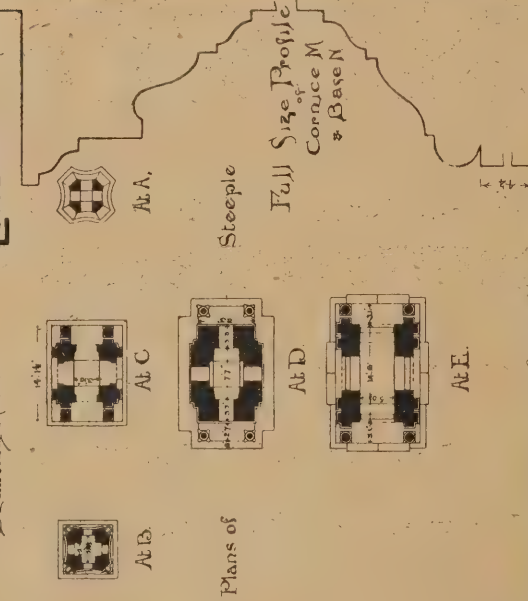


Longitudinal Section

on line cut drawing No 1



Scale in Feet



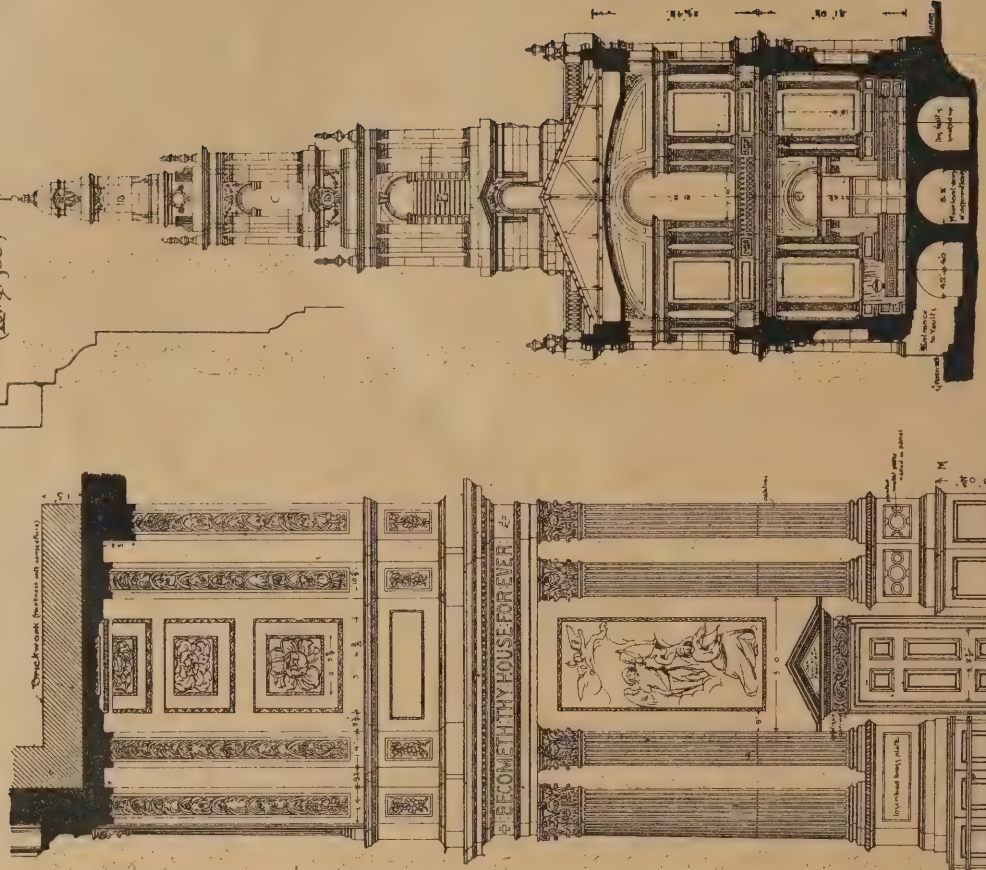
Plans of

Steeple

Full Size Profile of Cornice M & Base N

Full Size Profile of upper portion of Dado Panelling

Full Size Profile of Cornice O in apse (long Sec)

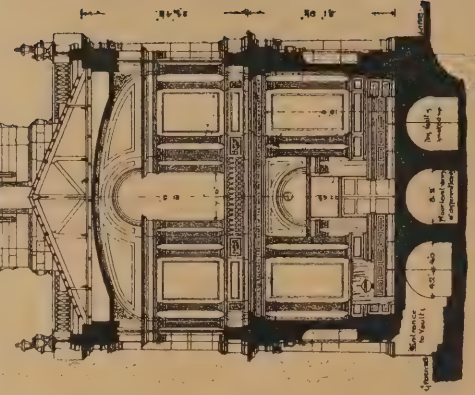


Elevation of Chancel Wall

Half Inch Scale

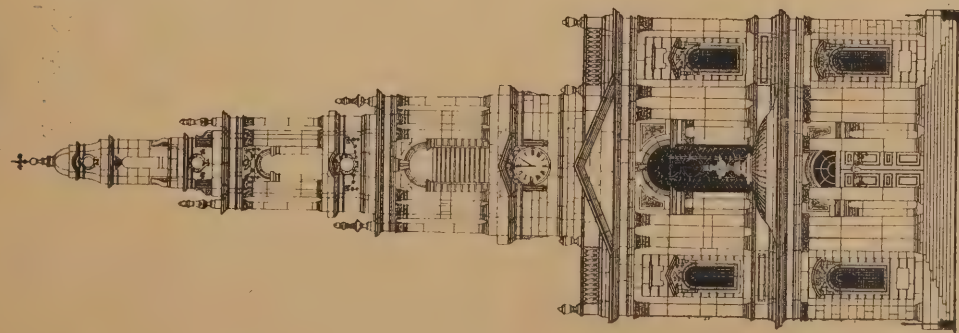
Transverse Section Looking West

on line cut drawing No 1 of Plan

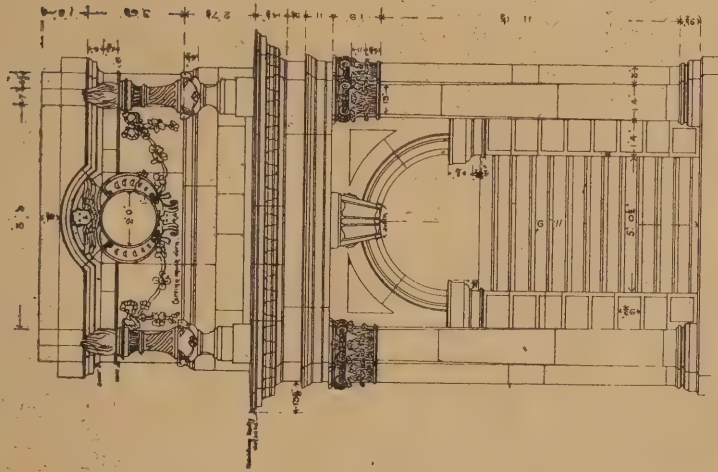


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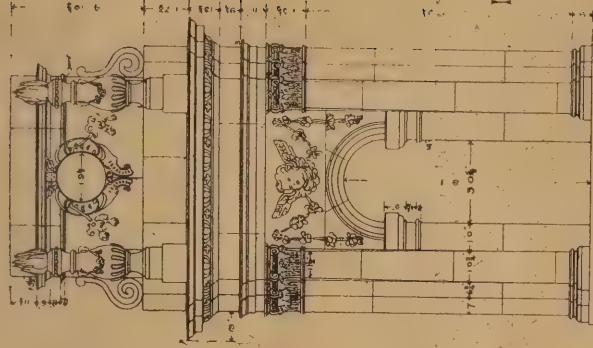
THE CHURCH OF SAINT MARY-LE STRAND. LONDON.



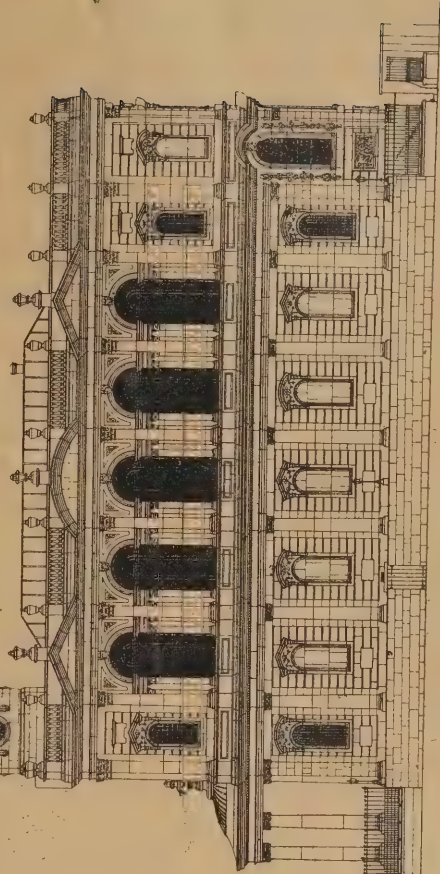
West Elevation



Detail of Tower
at B



Detail of Tower
at A



South Elevation



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Surveying and Sanitary SUPPLEMENT.

OCTOBER 20TH, 1897.

FILTER PRESSES FOR SEWAGE SLUDGE.*

By JAMES CROLL.

IN dealing with the disposal of water-carried sewage in inland districts, the chief consideration is the separation of the water from the solids. On the quantity to be dealt with, and the character of the district, depend mainly the most suitable method to be adopted. Where sufficient land with a suitable soil and sub-soil is available, and the situation favourable for irrigation, the sewage is frequently disposed of with advantage for this purpose, thus obviating the necessity for a chemical or mechanical process.

When, however, irrigation is not practicable, and precipitation of the solids by means of chemicals is resorted to, the sewage, after being chemically treated, is collected into tanks designed for the purpose, and allowed to settle. The clarified water is drawn off by means of floating arms and valves, leaving a muddy deposit containing a large percentage of moisture, varying from 90 to 95 per cent. of its bulk. For reducing the moisture in this residue to a condition in which it can be easily handled, various evaporative methods have been adopted, which consist of evaporation by exposure to the atmosphere, or by heat applied. The former, in most cases, gives rise to a nuisance by polluting the atmosphere of the surrounding district, and a large area of ground is therefore required, while the latter is inadmissible on account of the expense it entails in the operation. The method most commonly adopted is that of separating the water from the solids by an apparatus known as a filter press. This machine is speedy and cleanly in its operation, producing the solid matter in a portable form, easily manipulated, free from offensive odours, and, as regards cost, it compares favourably with any of the other methods in practical use.

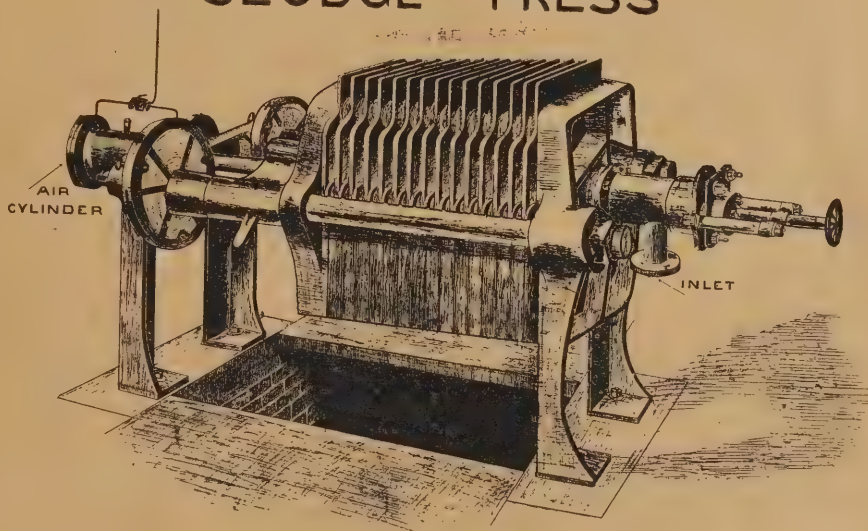
Filter presses are also applicable to other industries where it is necessary to separate water from solids, as in breweries and chemical works. This machine is generally constructed of a number of plates having grooves for drainage on each face, communicating with an outlet at the bottom, and having a passage in the centre for through communication. It is mounted on a frame, and the diaphragms are held apart by means of distant pieces, or pins cast on, thus forming a cell between each two plates. The surfaces of the diaphragms are covered with a filtering medium, which also serves as a jointing material at the rim when the whole has been forced together, and prevents the escape of any of the matter to be operated upon. For closing the press, an apparatus is provided at one end, consisting of one or more screws, acting on a massive

plate, called the head or follower. At the opposite end is an inlet valve and pipe, through which the fluid to be treated is introduced under pressure, and it passes through the centre communication of each plate, and is distributed throughout the press. As nothing introduced can find an exit without passing through the filtering medium, on pressure being applied the water is forced through the cloth into the drainage grooves, and is discharged at the outlets at the bottom of the plates. The solids being retained accumulate within the press until the cells are filled. When this is accomplished the filtrate will have ceased to flow. The press is then opened for the removal of the accumulated solids, which are in the form of cake, varying in consistency according to the material treated. In the case of sewage sludge cake (where a

side bars, but in some cases the plates are of wrought-iron or gun metal. Where metal chambers are inadmissible, such as for the filtration of substances acting chemically on metal, wooden plates are found very useful, although they have to be worked at low pressure. As it is intended in this article to deal with the apparatus as applied to the treatment of sewage sludge only, the details of the different presses and plates in use for other purposes will not be considered.

In adapting the filter press for sewage purposes, the chief difficulty has been in designing a plate of sufficient strength to withstand the pressure on one side only without it being of excessive weight or thickness. Such a plate is necessary in consequence of the frequent stoppages of the central passage between the chambers, by reason of the fibrous matter

SLUDGE PRESS



small proportion of lime has been added to the sludge), the moisture varies from 50 to 60 per cent. Thus it follows that from five to six tons of wet sludge at 90 per cent. are reduced to about one ton of cake.

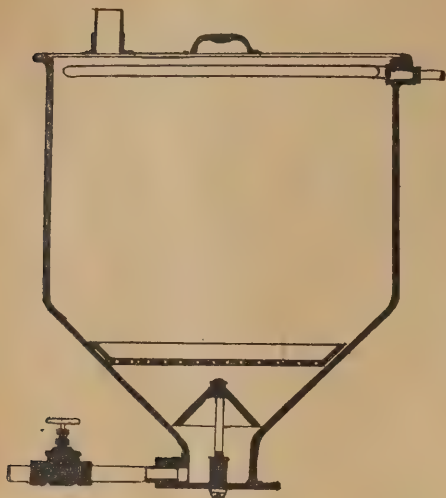
This class of machine has now been in use for a number of years, and is of various design in detail, according to the character of the work to be performed, many improvements having been made which have materially reduced the capital outlay, and added to its efficiency. With slight modifications, it can be applied to a variety of purposes; in fact, before any attempt was made to adapt it to the treatment of sewer sludge, it had been in successful operation in sugar refineries, oil works, breweries, chemical, and other works for many years. The press is usually constructed of cast-iron, with steel

contained in the sludge attaching itself to the edges of the passage, and accumulating (as it readily does) until the passage is completely blocked, thus destroying the equilibrium of pressure on opposite sides of the plates. As a pressure of 90 lb. to the square inch is frequently used on presses with 36 in. plates, and the plates have to be moved by hand twice during each operation of unloading, the impracticability of having a plate of sufficient thickness to withstand such a pressure will be readily understood.

To guard against breakage in such cases various devices are in use, notably that in which a series of bosses are cast on the surface of the plates at equal distances, which, when the plates are in position face to face with each other, come in contact, and form a series of stays, thus reducing the area of unsupported

* A paper read at a meeting of the Society of Engineers.

FIG. 5



surface exposed to pressure. (See Fig. 2.) Another method is that of giving the plate a curved section, as shown in Fig. 3. The convex side being towards the inlet end of the press, additional strength is obtained, offering the necessary resistance when a blockage occurs. In presses of small dimensions the plates are usually made straight and unsupported. In some cases they are circular in form, and, although obviously of greater strength than square plates, they are somewhat wasteful as regards cloth, seeing that an equal length must be cut off the roll for either shape. The square plates give a larger filtering surface than those of the round presses, where the diameter equals the breadth and depth of the square.

Fig. 4 shows a section of the flush plate and distance frame type. The distinctive feature of this type is that the rim is flush with the drainage surface of the diaphragm, which may be constructed either of wrought or cast-iron. The filtering medium usually employed with the cast-iron plate having a drainage surface is jute or hemp canvas. The wrought-iron plate not being provided with a drainage surface, the canvas is substituted by a thick mat of coir fibre, which by the arrangement of its strands, forms a number of drainage passages in itself, through which the filtrate passes to the outer edge of the diaphragm, where it is received into channels and conducted to the outlet.

The screw-tightening gear employed on the smaller machines is simply a powerful screw with a capstan wheel or other leverage attached, the screw acting on the centre of the follower. For large machines additional tightening gear is necessary to obtain sufficient pressure for making the joints between the chambers water-tight under pressure, and so avoid the inconvenient leaks and squirting which sometimes occur. One system of opening gear in frequent use consists of moving the follower backward or forward as required by means of an air cylinder attached to the end of the frame. A screw on each side rod is also provided, by which the final tightening is effected. Moveable distance pieces placed between the screws and the follower are also provided to allow the necessary space for opening.

The method of introducing the fluid into the press is a matter of considerable importance. Practically, there are but two systems in use for the purpose, viz., the direct forcing system, and the pneumatic or air pressure system. Were it not for the practical difficulties that are met with in pumping a mixture containing large quantities of solids of such a character as sewage sludge, the direct pumping system would undoubtedly be the more economical method, and its simplicity and smaller capital expenditure are points very much in its favour. When this method is adopted the motive power and the capacity of the pump should be in such proportions as to be capable of working at a varying speed, and equally balanced when the maximum pressure is reached, as a large

quantity of sludge is required to be forced into the press at the commencement of the charge, and afterwards gradually diminished as the operation goes on. If the motive power be in excess of the pump capacity, the pressure may rise and cause a breakdown. A relief valve may be provided, but unless it is occasionally moved it becomes set, and is not reliable.

The success of this system, however, depends mainly on the design and sound construction of the pump and pump valves; but if sufficient attention be given to screening the sewage and also the sludge before it enters the pump, the choking and slip of the valves, which usually occur, will be greatly reduced, and a steady pressure will be maintained. The pumps employed are of various forms, but the one in most common use is that of the external packed plunger type, with steam for the motive power. The plunger type is preferable as being accessible, and it can be kept tight or the packing renewed, whereas with the internal packed type the gritty substances rapidly cut the plunger and pump barrel, and excessive slip may be going on for a considerable time, as it cannot be readily detected until the pump fails to do its work or is opened for inspection. When it is considered that the load on the pump is equal to a column of water 200ft. high, and that the plungers rarely exceed 4in. diameter, the necessity for being absolutely tight is apparent.

The following is a description of the Drake and Muirhead forcing system as applied to several sewage works. It is given by the author, as it presents several practical advantages of importance.

The sludge from the precipitation tanks is received into a pit underneath the press-house, from which it is pumped to a high level agitating vat, where a small proportion of ground lime is added. From there it is forced direct into the presses by a horizontal engine

of the steam duplex type. This form of engine readily adapts itself to variations of pressure, and by the slide-valve arrangement one or other of the ports must always be open. There is, therefore, no dead point, and the engine continues to work until the pump pressure is equal to that of the steam cylinder.

The steam cylinders are placed side by side, and the one piston acts to give steam to the other, causing a movement similar to a pair of engines coupled at right angles, but with a slight pause at each end of the stroke, which allows the valves to seat without shock. For each side two external packed plungers are provided, which work into each end of a pump-cylinder having a central partition. The plungers are connected together by external rods, in such a manner as to cause them to work together as one plunger, thus, when one is filling the other is forcing, and the action is that of a double-acting pump, and gives a steady pressure. The suction supply being above the level of the pump, assists the pump-cylinder in filling, so that the engine can work at a high speed when required for charging. The suction and delivery chambers are fitted with hinged flap valves, and an arrangement is also provided for forcing them into position in the event of any large substances lodging on the seats.

The air-pressing or pneumatic system consists of running the sludge into a vessel called a ram, which is of sufficient size to contain a charge, and is provided with a dip-pipe reaching nearly to the bottom. When this vessel is charged, and the necessary valves shut, compressed air at from 80lb. to 100lb. pressure is applied to the top of the sludge, forcing it up the dip-pipe into the filter. The air may be supplied either direct from the compressor or through the medium of an accumulator, according to the requirements of the case.

An air accumulator or receiver for storage is usually provided, and the advantages of this are many when a large quantity of sludge has to be dealt with. By this means a filter with $1\frac{1}{2}$ yards of cell space can easily be filled, and filtration commenced in about thirty seconds with only a slight variation in pressure, the air compressor working at a uniform speed. As the pressing operation is nearing completion the surplus power from the compressor is being stored in the receiver, ready to be drawn

FIG. 2.



FIG. 3.



FIG. 4.



upon again when required; thus, in comparison with the direct forcing system, not only a saving of time in pressing, but also a saving in labour is effected, much less attention being required to an engine performing such work than is necessary to an hydraulic pump working with a varying load.

The addition of a small quantity of fresh lime to the sludge immediately before being forced into the press greatly facilitates the solidifying process. The time taken to produce a hard cake depends mainly on the quantity of lime used, but against this it must be borne in mind that the greater the quantity of lime used the smaller the manurial value of the cake produced.

In the Native Guano Company's process, commonly called the A.B.C. process of sewage treatment, filter presses, and the pneumatic system, are employed. The object being to produce the sludge at the highest value as a manure, the use of lime is entirely dispensed with. The cake produced contains about the usual percentage of moisture, but the time taken in pressing is approximately twenty-four hours, and a much larger filtering area has to be provided than is necessary where a small quantity of lime has been added.

The pressing plant erected at the works of the Richmond Main Sewerage Board in 1891 consists of a building with a sludge reservoir underneath, three filter presses, two pairs of forcing engines, two double-acting lift pumps, one single acting air pump, two mixing tanks, two pneumatic lime mixers, and all the necessary pipes and trucks. The building is 104ft. by 21ft., and the sludge reservoir 64ft. by 19ft., and capable of storing 2000 tons of wet sludge. It is provided with a skimmer having a perforated surface 2ft. by 1ft. 6in., and a pinion and rack for adjustment, and is connected to a 4in. pipe communicating with the untreated sludge chamber.

The filter presses are by S. H. Johnson and Co., and are erected on a platform made of H iron girders, built in the wall at one end and supported on cast-iron pedestals at the other, covered with rough surface floor plates. Each press has a capacity for producing one ton of pressed cake, the total cell space being 30 cubic feet. The plates are of cast-iron, and form thirty cells, each cell or chamber allowing the formation of a cake 34in. square, and 1½ in. in thickness. The drainage surfaces of the diaphragms are pyramid pattern, that is, the grooves or channels intersect one another at right angles. At 8in. radius from the centre are four projections which, with their counterparts, form stays, throughout the press, all the bearing parts being machine-faced true to each other.

The filtering medium is of jute canvas, cut in lengths of 6½ft., and having two holes punched. The canvas is hung over the plate, completely covering both surfaces, and the holes conform with the feed passage through the plate, around which the cloth is securely fixed by means of a quickly closing brass union, which secures the cloth effectively by a quarter turn. The arrangement for opening and

closing comprises a screw 4in. diameter, and thread of Buttress section 2½ to the inch, carried in a screw bush 8in. long, and actuated by a double purchase gear, consisting of a helical spur wheel, 3ft. 3in. diameter, geared to a 7½in. pinion, on a mandrel, to which is attached a capstan wheel, 4ft. 6in. diameter, and is of sufficient length to allow an opening of 1ft. 3in. for removal of the cake.

The two pair of forcing engines are each of the same dimensions, viz.: Two steam cylinders 6in. diameter with side valves cutting off at 0.6 of the stroke, and pumps 4in. diameter and 12in. stroke, secured to cast-iron bases, parallel to each other, and a fly wheel 4ft. 6in. diameter, weighing 15cwt. The pump plungers are connected direct on to the piston tail rods, and are single acting, working in stuffing boxes 6in. deep, packed with hemp. The suction and delivery of valves are circular in form, the guide being cast on the valve box cover, thus giving a clear opening. On the delivery main there is an air vessel or accumulator 4ft. 4in. by 1ft. 4½in.

The two horizontal lift pumps are independent of each other, with steam cylinder, 6in. diameter, and pump, 6in. diameter by 12in. stroke, secured to a cast-iron base plate, and acting without rotary motion. A link gear attached to the piston-rod gives motion to an auxiliary slide valve, which admits steam to the cylinder through the medium of a piston, to which the main valve is attached. The pump plunger, working in a cylinder, is double acting, and was originally fitted with spring rings, which have since been replaced with rope packing. This form of pump, although unsuitable for high pressure, answers sufficiently well at a low lift, as in the present case. The pump valves are of the same pattern as those on the force pump. One single acting air blower, having a steam cylinder, 4in. diameter and 8in. stroke, and air cylinder, 8in. diameter and 8in. stroke, working at low pressure, supplies compressed air for mixing purposes.

Two pneumatic lime mixers, shown at Fig. 5, are 2ft. 6in. diameter, and 2ft. 6in. deep, and are worked in the following manner:—A charge of lime in lumps is placed on the grid inside the vessel, and is sprinkled with sufficient water to slake it, and the cover of the vessel shut. After the lapse of a few minutes the valve is opened and a further quantity of water run in until the lime is completely submerged. During the wetting process a jet of air from the air-pump is admitted; it agitates the contents, and keeps the holes of the grid open. The milk of lime is then drawn off by a valve, the outlet passage being kept clear by the action of the air. In 1894 additional pressing machinery was erected, consisting of three filter presses, a duplex air compressor, an air receiver, two sludge rams, and all the necessary pipes for pressing by air pressure, and a system of pipes for ventilating the sludge reservoir and tanks. The three filter presses are of the same capacity as those put down in 1891, but they differ somewhat in point of detail.

(To be continued.)

Surveying and Sanitary Notes.

LIVERPOOL has long been conspicuous amongst cities for continuous and drastic improvements in methods of sanitation. An exact, not a rule of thumb, knowledge of sanitary science should be in the possession of those who seek to serve as the sanitary inspectors of municipalities, and in recognition of this fact a committee has been formed at Liverpool called the Sanitary Science Instruction Committee, and has arranged a winter course of tuition in matters affecting the public health, this being designed to meet the requirements of sanitary inspectors, teachers, lecturers, builders, foremen of works, surveyors, architects, and of others interested in subjects connected with sanitation. The opening lecture was delivered in the Arts Theatre of University College, by Dr. Hope. Subsequent lectures and demonstrations will be given in Ashton Hall, University College. The systematic course of lectures will embrace: 1. "Sanitary Engineering and Appliances;" lecturers, Mr. Wilding (surveyor, Runcorn), Mr. Goldstraw (deputy-building surveyor, Liverpool), and Dr. Manby (assistant medical officer). 2. "Food Inspection," "Diseases of Animals," and "Bacteriology;" lecturers, Dr. Hope and Professor Boyce. 3. "Objects and Methods of Inspection of Nuisances" and "Vital Statistics and Meteorology;" lecturers, Dr. Hope and Dr. Manby. 4. "Methods of Disinfection, &c.;" lecturer, Dr. Manby. 5. "Sanitary Law;" lecturer, Mr. E. W. Pierce (assistant town-clerk).

At the Kingston-on-Thames Borough Bench "the Mayor, Aldermen, and Burgesses of the Borough of Kingston-on-Thames" were summoned by the Thames Conservancy for allowing sewage matter to flow from one of the borough sewers into the Hogg's Mill River and thence into the Thames, and thus polluting the same.—Mr. W. S. Bunting, who appeared to prosecute on behalf of the Thames Conservancy, explained that notice to discontinue the pollution was served upon the Kingston Corporation in April last year, and that as this was not complied with a summons was issued, a sample of the affluent disclosing the fact that it was highly charged with nitrogenous and organic matter. He also pointed out that the Corporation had rendered itself liable to a penalty of £100 and a daily penalty of £50 during the continuance of the pollution.—Mr. Drummond, chief inspector of the pollution department of the Thames Conservancy, reported having served the notice, but said the Corporation had since diverted 2½ miles of surface-water drains which formerly went into the sewers and had instituted a system of night pumping at the sewage works.—A fine of £1 and costs was imposed.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Oct. 22	Winchfield—Cottage Home	Guardians	Union House, Winchfield.
" 22	Great Yarmouth—House	J. L. Hunt	C. G. Baker, Architect, Town Hall-chambers, Gt. Yarmouth.
" 22	Kennethmont, Aberdeenshire—Distillery Buildings, &c.		C. C. Doig, Architect, Elgin.
" 25	Seaham Harbour—Shed, &c.	Urban District Council	Council's Office, Marlborough-street, Seaham Harbour.
" 25	Manchester—Engine Houses, &c.	Waterworks Committee	Secretary, Waterworks Offices, Town Hall, Manchester.
" 25	South Brent, Devon—Restoration of Organ		Vicar, Parish Church, South Brent, Devon.
" 26	Windsor—Passenger Station, &c.	Great Western Railway Co.	Engineer, Paddington Station, London.
" 26	Hampstead—Fire Brigade Station, Alterations, &c.	London County Council	Architect's Department, 13, Spring-gardens, S.W.
" 26	Leeds—Public Baths	Baths Committee	W. Hanslock, Architect, Branch-road, Batley.
" 26	Dagenham, Essex—Ward Pavilion at Hospital	County Borough	L. Angell, Town Hall, Stratford, E.
" 26	Featherstone, Yorks.—Villa Residence	Dr. Steven	Garside and Keyworth, Architects, Ropergate, Pontefract.
" 26	Kendal—Schools, &c.	Rev. Father Stevenson	J. Stalker, Architect, Kendal.
" 26	New Bilton, Rugby—Stores	Committee of Co-operative Society	J. T. Franklin, 40, Bridget-street, Rugby.
" 26	Purton and Suckley—Cottages	Great Western Railway Co.	Engineer, Gloucester Station.
" 26	Westbury, Glos.—Cottage	Great Western Railway Co.	Engineer, Gloucester Station.
" 26	Wolvercote and Bletchington—Cottages	Great Western Railway Co.	Station-Master, Oxford.
" 28	Prestige—Pulling down and Re-erecting School	Radnorshire County Governing Body	H. Teather, Andrew's-buildings, Queen-street, Cardiff.
" 28	Birmingham—Workhouse Dining Hall, &c.	Guardians	W. H. Ward, Architect, Paradise-street, Birmingham.
" 28	Surbiton—Post Office, &c.	Commissioners of H.M. Works	H.M. Office of Works, &c., 12, Whitehall-place, S.W.
" 28	Windermere—Residence	Dr. Mason	R. Walker, F.R.I.B.A., Windermere.
" 28	Stairfoot, near Barnsley—Two Cottages		G. Moxon, Central-chambers, Church-street, Barnsley.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Oct. 29	Shrewsbury—Engine Houses, &c.	Corporation	J. Taylor, Sons, and Santo Crimp, 27, Great George-st., S.W.
" 30	Christchurch, Hants—Workhouse Additions	Guardians	A. Druitt, Clerk, Christchurch.
" 30	Falmouth—Infirmary	Guardians	J. H. Genn, Clerk, Falmouth.
" 30	Horrabridge, Devon—School Alterations	Whitechurch School Board	W. Squire, Architect, Tavistock.
" 31	Wrexham—Latrines	County School Governors	J. Morison and Son, 10, King-street, Wrexham.
Nov. 1	Manorhamilton, Ireland—Repairs	Barry Railway Company	E. O'N. Clarke, County Surveyor, Carrick-on-Shannon.
" 1	Barry Dock, Wales—Offices	School Board	Company's Engineer, Barry Dock.
" 1	Hornchurch—School, &c.	Guardians	E. W. Whittaker, 1, Gresham-buildings, Basinghall-st., E.C.
" 2	Brighton—Buildings	Guardians	H. S. Reed, Offices, Princes-street, Brighton.
" 2	Chelsea—Meat Store, &c., at Infirmary	Guardians	Sansdell and Harrison, 12, Compton-terrace, Highbury, N.
" 3	Farnham—Joint Isolation Hospital	.....	S. Stapley, West-street, Farnham.
" 3	Barnes, S.W.—Six Shops and Dwelling-houses	.....	F. W. Stocker, 90 and 91, Queen's-street, Cheapside, E.C.
" 5	Bedford—Post Office	Commissioners H.M. Works	Office, 12, Whitehall-place, S.W.
No date.	Aberdeen—Offices	.....	D. Rose and Co., Union-street, Aberdeen.
"	Ashton-under-Lyne—Seven Houses	.....	E. Garside, Town Hall-chambers, Ashton-under-Lyne.
"	Belfast—Rebuilding, &c.	.....	J. J. O'Shea, 16, Chichester-street, Belfast.
"	Chester—Pulling Down, &c.	.....	Secretary, Chester Cemetery Co., Chester.
"	Donaghadee, Ireland—House and Shop	.....	T. Pentland, 35, High-street, Belfast.
"	Knottingly—Stables, &c.	Knottingly Brewery Company, Limited	Tenant and Bogley, Architects, Goole.
"	Liverpool—Alterations	Fishlock Bros.	Fishlock Bros., Elliot-street, Liverpool.
"	Manchester—Premises	Grange Park Dairy Company	E. W. Leeson, 49, Princes-street, Manchester.
"	Margate—Public-house Alterations	W. W. Wooster	A. Latham, 15, Cecil-square, Margate.
"	Rochford, Essex—Cottage	.....	Rainbow Cottage, Ashington, Rochford, Essex.
"	Stockton—Plastering	.....	R. Jobson, Moses-street, Bowfield-lane, Stockton.
"	Belfast—Alterations, &c.	C. Cassidy	J. V. Brennan, 81, High-street, Belfast.
"	Douglas, Isle of Man—School	Committee	L. R. Lewin, Offices, Douglas.
ENGINEERING—			
Oct. 22	Manchester—Storage Tanks, Engines, &c. (4 Contracts)	Corporation	Waterworks Office, Town Hall, Manchester.
" 22	Mallow—Repair, &c., of Waterworks	Guardians	Board Room, Workhouse, Mallow.
" 22	Walthamstow—Sludge Press	Urban District Council	G. W. Holmes, Surveyor, Town Hall, Walthamstow.
" 23	Swansea—Railway	Rhondda and Swansea Bay Ry. Co.	Engineer, 9, Fisher-street, Swansea.
" 23	Penrith—Bridge	Rural District Council	C. N. Arnison, Clerk, Penrith.
" 25	Hindley, Lancs.—Pumping Machinery	Urban District Council	A. Holden, A.M.I.C.E., Council Offices, Hindley.
" 26	Dover—Boiler	Town Council	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 26	Powick, near Worcester—Reservoir, &c.	.....	E. B. Marten, M.I.C.E., Church-st.-chambers, Stourbridge.
" 27	London, S.W.—Laundry Machinery	Metropolitan Asylums Board	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
Nov. 2	London, E.C.—Engines, &c.	Shoreditch Vestry	Kincaid, Waller, and Manville, 29, Great George-street, S.W.
" 2	Wexford—Three Conical Buoys	Harbour Commissioners	J. F. Walsh, Secretary, Ballast Office, Wexford.
" 5	Hull—Electrical Equipment of Tramways	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 30	Singapore—Street Lighting	Municipal Commissioners	C. C. Lindsay, 167, St. Vincent-street, Glasgow.
No date.	Belfast—Gas Producers, &c.	Messrs. Wright, Limited	J. G. Tinley, 4, Waring-street, Belfast.
"	Cardiff—Sinking Well	.....	—Storie, 104, Frederick-street, Cardiff.
"	Belfast—Levelling and Enclosing Ground	Celtic Football Club	W. J. Moore, Architect, Ann-street, Belfast.
IRON AND STEEL—			
Oct. 23	Oswestry—Railway Stores	Cambrian Railway Co.	G. Owen, Company's Engineer, Oswestry.
" 25	Hindley, Lancs.—Pipes, &c.	Urban District Council	A. Holden, C.E., Council Offices, Hindley.
" 25	London, W.—Stores	Great Western Railway Co.	Stores Superintendent, Swindon.
" 26	Stoke-next-Guildford—Fountain, &c.	Parish Council	Peak and Lunn, 36, High-street, Guildford.
" 27	London, E.C.—Stores	Madras Railway Co.	J. Byrne, 61, New Broad-street, London, E.C.
PAINTING AND PLUMBING—			
Oct. 25	Huddersfield—Painting and Colouring	Guardians	E. A. Rigby, Clerk, Ramsden-street, Huddersfield.
ROADS—			
Oct. 22	Walthamstow—Road Works	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
" 22	Oakworth, near Keighley—Widening Street, &c.	Urban District Council	Council Offices, Oakworth.
" 23	Farnham—Road Materials	Urban District Council	R. W. Cass, Surveyor, East-street, Farnham.
" 25	Dewsbury—Granite Setts	Corporation	H. Dearden, Borough Surveyor, Town Hall, Dewsbury.
" 25	Beckenham—Laying Crossings, &c.	Urban District Council	J. A. Angell, Council's Offices, Beckenham.
" 26	London, W.—Ballast	St. Mary Abbots Vestry, Kensington	W. Weaver, Surveyor, Town Hall, Kensington.
" 26	West Hartlepool—Road Materials	Corporation	Borough Engineer, Corporation Depot, West Hartlepool.
" 26	Bromley—Road Works	Urban District Council	Surveyor, Council Offices, Bromley.
" 26	Lewisham—Road Works	Board of Works	Surveyor's Office, Town Hall, Catford, S.E.
" 27	Litherland, Lancs.—Passage	Urban District Council	M. Aspinall, Borough Engineer, Broad-street, Ramsgate.
" 27	Ramsgate—Cherbourg Quartzite	Works Committee	W. B. Garton, 25, Sefton-road, Litherland.
" 28	Coventry—Making-up, Channelling, &c.	Corporation	J. E. Swindlehurst, St. Mary's Hall, Coventry.
Nov. 1	Southampton—Road Works and Carting	.....	W. J. Taylor, Surveyor, The Castle, Winchester.
" 1	Mountain Ash, Wales—Road Works, &c.	Urban District Council	J. Williams, Council's Surveyor, Town Hall, Mountain Ash.
" 2	Sunderland—Paving	Corporation	Borough Engineer, Town Hall, Sunderland.
SANITARY—			
Oct. 22	Durham—Alterations, &c., to Sewage Works	Rural District Council	G. Gregson, 43, Western-hill, Durham.
" 23	Sowerby, near Thirsk—Sewerage Works	Rural District Council	T. Stokes, Surveyor, Market-place, Thirsk.
" 25	Maidenhead—Canvas for Sludge Pressing	Town Council	J. H. Barford, Outfall Superintendent, Maidenhead.
" 25	Hindley, Lancs.—Sewage Disposal Works	Urban District Council	A. Holden, A.M.I.C.E., Council Offices, Cross-st., Hindley.
" 25	Shipley, Yorks.—Sewers	Urban District Council	M. Paterson, 35, Manor-row, Bradford.
" 25	Whitechurch, Hants—Scavenging	Rural District Council	Inspector of Nuisances, Whitechurch.
" 26	Tadcaster—Sewer	Rural District Council	H. Denman, Inspector of Nuisances, Aberford, near Leeds.
" 28	Hebden Bridge—Sewage Works	Urban District Council	Messrs. Newton, 17, Cooper-street, Manchester.
" 30	St. Annes-on-Sea—Drainage Works	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
Nov. 2	Llanishen, Wales—Removal of Refuse, &c.	Urban District Council	M. Warren, Clerk, Queen's-chambers, Cardiff.
" 16	Llythan, Lancs.—Sewerage Works	Llandaff Rural District Council	H. Bancroft, 88, Mosley-street, Manchester.
No date.	Leeds—Converting Privies	Urban District Council	F. Knowles, Block 15, Kirkgate Market.
TIMBER—			
Oct. 25	London, E.C.—Telegraph Poles	Postmaster General	C. E. Stuart, Controller of Stores, General Post Office, E.C.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 28	Wolverhampton—Free Library (selected architects)	.....	Town Clerk, Wolverhampton.
" 30	Uxbridge—Schemes for Sewerage and Sewage Disposal	{ £45 (if combined) £15 for Eastcote and £25 for Northwood (if separate schemes)	Rural District Council.
" 30	Sheffield—Designs for Centre Standards, &c., for Tramways.	£10 10s.	City Council.
Nov. 13	Byfleet—Village Hall and Club	£26 5s.	Committee.
" 20	Southend-on-Sea—Plans for Church	Not stated	St. Alban's Church Committee.
" 30	Mexico—Legislature Palace	15,000 dol. Mex.	Secretary, Public Works, Mexico City.
Dec. 4	Wells—Plans, &c., for Public Hall	£25, £15, £10	Town Council.
" 15	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
" 15	Nottingham—Designs for Laying Out and Planting Cemetery	£100, £50	Corporation.
" 15	Nottingham—Designs for Cemetery Buildings	£100, £50	Corporation.
No date	Dukinfield—Town Hall	£40, £20	Urban District Council

THE ARCHITECTURAL ASSOCIATION.*

ITS HISTORY AND AIMS.

(Continued from page 220.)

THE Discussion Section affords opportunities for the study and discussion of those subjects and difficulties which occur in actual practice; this is a most valuable part of our work, and it is gratifying to note its continued success. A record of the Association transactions would not be complete without a reference to the special meeting held in December, 1893, when the question of the admission of ladies into membership of the Association provoked a lively discussion, and the proposal was defeated by a large majority. Since then no one has come forward to advocate the cause of the ladies, but we have, on several occasions, been reminded of the existence of such a class of students on the boards of the A.A. Soirée stage. We have now traced in outline the work and

PROGRESS OF THE ASSOCIATION

during the fifty years of its existence. There are, of course, many incidents and details that would have been interesting to enlarge upon, but on an occasion like this it would be impossible to do so. There are, too, many names that might have been mentioned as identified with the course of events, but it would be undesirable to single out a few where so many have borne an active part. The history of the Association is marked throughout its career by a fixed determination on the part of its members to maintain its independence, to uphold its traditions, to overcome all difficulties, to grapple with changing circumstances, to keep abreast of the times, to seek the counsel of its best friends, to encourage and help the young student, to provide the best training and education at its command, to keep in touch with those who have passed through the student stage, to keep alive the memories and maintain the friendship of those who have retired from active service, and above all to advance the noble Art of Architecture. May the same devotion and self-sacrifice, the same enthusiasm and loyalty, characterise the men who are entering our ranks to-day, so that the Association may accomplish in the future greater things than in the past, and heaven smile upon the works of their hands. We have been looking into the past and rejoicing in our year of Jubilee at all that has been accomplished; let us turn for a moment to the present. We have entered upon a new session with

THE LARGEST ROLL OF MEMBERS

ever recorded, viz., 1150. It may be interesting to note that of this number eleven have been members for forty years and upwards, sixty for thirty years and upwards; 110 for twenty-five years and upwards; 180 for twenty years and upwards, 302 for fifteen years and upwards, and 552 for ten years and upwards. Seven hundred and forty-eight of our present number joined before the subscription was raised in 1891, so that 402 have come in and remained since then. Various conclusions can, of course, be drawn from these or any other figures, but this, at least, may be said, that the Association has succeeded in retaining many of its best and most valued friends, who are ever ready to testify to the great advantages they have derived from its membership. On the other hand, there is a solid army of young men, many as yet untried, who are destined to take up the reins of government before long, and who have opportunities which, if wisely used, may be productive of lasting good to their own and future generations in raising the status of the Profession and in the advancement of Architecture as a living Art. There is one point in our comprehensive scheme of education which demands attention, and continues to disappoint us. While the students of Division I. attend in very satisfactory numbers on the whole (and in fact the present accommodation is somewhat strained to pro-

perly provide for them), those in Division II. are comparatively few. What becomes of those who have passed through the first stage? It is very evident that a large proportion of them

DO NOT CONTINUE THEIR STUDIES

and complete the course we wish them to follow. This is a problem that we have not succeeded in solving yet, and it suggests the advisability of making individual enquiries of those who have passed through Division I. to ascertain the causes which apparently lead them to abandon the higher and more advanced studies provided for them. The combination of practical with theoretical instruction is also a subject which is exercising the minds of many. At present, the facilities we offer our students in this direction are very limited. In the handicraft classes last session, the students were enabled to attend a course of manual training in masonry and leadwork, thanks to arrangements made by the Technical Education Board; and this session the Board has kindly arranged for a series of workshop demonstrations in stone working, to be given at the Regent Street Polytechnic. There appears to be a difference of opinion as to how far it is necessary or desirable that an architect should be able to put his own hand to the work of any trade. If it is an advantage that an architect should have actual manual experience, would it not be better that a student should be taught or apprenticed to one trade—say mason or carpenter—before he serves his articles? Such a course would seem to be the most convenient as well as the most practicable; later on he might with advantage gain considerable knowledge in other crafts, not necessarily by

HANDLING THE MATERIALS AND TOOLS,

but by observation either on works, in shops, or in craft classes; while later still the superintendence of works, either as clerk of works or otherwise, would be an experience of great practical value. After all, the years of a student are limited, and even if he should make the very best use of his opportunities, he cannot expect to accomplish very much in this department of his education. By far the most useful and appropriate thing for an architectural student is modelling, and it is a question whether this is not worth all the other crafts put together. The tendency of the times is, perhaps, to make too much of the manual work undertaken at the Technical Institutes. It is valuable as far as it goes, especially in the more scientific subjects, but it is a fallacy to suppose that it can in any degree supersede the training which an apprentice to his trade must and should acquire in the workshop, where the everyday practical problems have to be dealt with. You will have gathered from the report of the Committee for last session that it has been resolved to commemorate the Jubilee of the Association by establishing a fund for acquiring new premises, suitable and adequate for the work carried on. It would be quite contrary to the wishes and feelings of all who have the interest of the Association at heart to let so important an occasion pass without making some special effort to permanently benefit a Society that has done so much to further the cause of

ARCHITECTURAL EDUCATION,

and in whose welfare the whole Profession is concerned. Various suggestions have been made and discussed, but there seemed to be one predominant object which overshadowed all others. For the last few years the cry has gone forth for increased and better accommodation. Numerous efforts have been made to obtain premises, but hitherto without success; and, seeing that our need is as great as ever, it has been determined to commemorate the Jubilee in the way mentioned. We have sought the advice and help of friends who have aided the Association generously in the past, and they have intimated their readiness to support us again, provided we are prepared with some definite scheme. This is a most reasonable attitude, hence we are now going forward in the matter with renewed energy and determination, and are hopeful that the

way is opening up for obtaining a site on which premises could be erected to provide studios and class-rooms, library, reading-room and offices, a common room, and last, but not least, a meeting room, so that under one roof we may combine all the essential accommodation for educational and social purposes. The provision of workshops might, with advantage, be arranged in a separate building more suitable for the purpose, if satisfactory arrangements could not be made with any of the public craft schools. This outline of a scheme may seem to indicate a large undertaking, but if carried out on the lines we have in view, and which it would be premature to discuss, there is little doubt but that it could be satisfactorily accomplished. Our desire is

TO FORMULATE A DEFINITE SCHEME

that is practicable and attainable within reasonable limits and a reasonable period, not forgetting, at the same time, that it should worthily commemorate our Jubilee. The question of establishing a Municipal School of Architecture has been talked of and may yet come; but such an institution could never do the work that the Association undertakes, neither could the Association open its doors to outsiders and accept grants or subsidies from County Councils or other public bodies without sacrificing its freedom and ceasing to fulfil the objects for which it exists. It is an advantage that cannot be too strongly urged, that the architectural student should be trained in an architectural atmosphere, that he should have every opportunity of associating with kindred spirits and forming lasting friendships with them. The true spirit of comradeship will be best promoted by such intercourse, and the higher claims of Art will be more easily attained. If we would seek to stimulate the enthusiasm and fire the imagination of our fellow students, we must cultivate the love of the beautiful; we must continually strive for the advancement of our Art; our sympathies and powers must be directed to raising the standard of our attainments and keeping a high ideal ever before us. Let us go forward, therefore, with renewed energy to the duties and studies of another year, remembering that the opportunities, the advantages and privileges, which are now the inheritance of our students, have been obtained by the cordial co-operation, the self-sacrifice, the patient toil, and the brotherly love of men who, for fifty years, have joined hands in promoting the advancement of architectural education and upholding the first principles and honoured traditions of the Architectural Association.—Mr. Cole A. Adams opened a discussion, and, in proposing a vote of thanks to the President, referred to Mr. Pratt's lengthy and active connection with the Association. The speaker shared some of the views of the President as to technical education, and remarked that when they realised the enormous amount of work necessarily falling to the lot of the student, and remembered the comparatively short time in which he had to do it, they at once saw the unwisdom of devoting so much attention to the manual crafts. He instanced the great architects of the past as having failed to take up craft pursuits in detail. As Ruskin had pointed out, the imagination—the greatest quality in the making of a great architect—had to be cultivated, and this could not be thoroughly done if too much time were devoted to other subjects. In concluding, Mr. Adams acquiesced in the need of new premises for the Association, and expressed the hope that the President's year of office would be a prosperous one.—The vote of thanks was seconded by Mr. Beresford Pite. In listening to the President's address, he said, they all must have felt what a great debt Architecture in this land owed to their humble little body. It was not asserting too much to say that

WITHOUT THE ARCHITECTURAL ASSOCIATION

there would have been no architectural education; for in describing the origin of the demand for an examination, the President had described the origin of the demand for education. The constitution of the Association was a very healthy and vigorous one; it had not been hampered by Royal Charters or by gold

* Annual address of the President, Mr. Hampden W. Latt.

chains round its neck, there was a true liberality in the conservatism of the Association. Its aim had invariably been a high one, and in no period of its history had it lost sight of its object—the producing of fine Architecture. The speaker emphasized the importance of imagination in architects, classes of design were but means; they really wanted classes of observation, and classes that would excite conception in the mind; it was only by putting together the letters and phrases of an accomplished design in his mind that the architect was able to construct the work he had in hand. He emphasized the importance to students of looking at the illustrations in the building papers. The mind could accustom itself to seeing a large amount of architectural form, and unless the mind was furnished with a mass of design, a poverty of design and a distaste for it must follow. He ventured to suggest that reading and lecture studies were a healthy sign. If students continued for three or four years to give the best part of their time to hearing and cramming the pernicious of architectural education, imagination could not and would not grow. He cherished the idea that the student who had had a year's dose of reading and class lectures would desire the freedom of reading for himself, enjoying the pictures in Fergusson much more than hearing the lecturer describe Fergusson in unpleasantly short phrases.—Mr. Owen Fleming, in supporting the vote of thanks, remarked that somehow our railway stations, hotels, and Charing Cross roads were not animated by the same feeling of love and reverence that influenced the buildings of the beautiful abbeys, cathedrals, temples, and castles of the past. Many were not satisfied with present-day results, and these he imagined would, by their buildings in the twentieth century, help to make the

ARCHITECTURAL HISTORY OF FUTURE TIMES.

Remembering the character of the Architecture of to-day, he could not help wondering whether the education of architects at the Association was being conducted on the right lines. He thought that if we followed the lines of Froebel, Pestalozzi, and Herbart, we should in the twentieth century, perhaps, be able to produce buildings like the wonderful old buildings of the past. What position was the Association going to take up in regard to this movement? It seemed that it intended having nothing to do with it; that it was not going to be associated with the rest of the world; nor would it take up its proper position at the head of the Architectural school in London; yet, as the great central institution in London for the education of architects, it seemed to him that it must do so if Architecture in London were to be permanently improved. They were in keeping their schools private and surrounding themselves with a high wall of paper and books, preventing themselves and their students from executing beautiful work. He asked for the position to be honestly and thoughtfully discussed.—The vote of thanks was carried, and in reply the President said he hoped that the Association's fifty-first year might be a very successful one, and that it might continue to make good progress.—Advantage was taken at the meeting of the opportunity of presenting Mr. D. G. Driver, the assistant secretary, with a silver tea and coffee service on the occasion of his recent marriage. Although Mr. Driver had only been connected with the Association for five years, said the President, in making the presentation, he had done an enormous quantity of useful work. Mr. Driver suitably acknowledged the compliment.

PRIZE LIST FOR SESSION 1896-97:

A.A. Travelling Studentship, value £25, and bronze medal, E. H. Evans; second prize, not awarded; Architectural Association Silver Medal and £10 10s., H. Inigo Triggs; hon. mention, F. D. Clapham; Essay Prize, value £10 10s., and silver medal, Alexander Wood; The Andrew Oliver Prize, first prize, value £3 3s., not awarded; second prize, value, £2 2s., not awarded; The Arthur Cates' Scholarship, value £10 10s., H. T. Bromley; Measured Drawings Prize, value £5 5s., C. H. F. Comyn;

hon. mention, H. Farquharson; Discussion Section Prize, not awarded; Architectural Union Company's Prize, not awarded; School of Handicraft (Masonry) Bronze Medal, H. C. Lander.

LECTURE SIDE.—*Division I.*—R. H. Spalding (silver medal and certificate), A. Wood (bronze medal), A. White (hon. mention).—*Division II.*—G. S. Nicol (silver medal and certificate), H. C. Trimmell (bronze medal), E. Hale (hon. mention).

STUDIO SIDE.—*Division I.*—V. Wilkins (silver medal and certificate), T. Bee (bronze medal), R. H. Spalding (hon. mention).—*Division II.*—W. H. Ward (silver medal and certificate).

ORDER OF MERIT.

Division I.—Greek and Roman Orders.—C. Brée (certificate), H. White, J. E. Franck. *Elementary Construction and Materials.*—C. Brée (certificate and book), W. C. Butterworth, W. J. Davies. *English Architecture.*—Alexander Wood (certificate), J. E. Franck, R. H. Spalding. *Elementary Physics, Formulae, and Calculations.*—J. E. Franck (certificate and book), R. H. Spalding, H. White. *Plane and Solid Geometry.*—R. H. Spalding (certificate and book), R. C. Hall, J. E. Franck. *Mensuration, Land Surveying, and Levelling.*—J. D. Hunter (certificate), L. G. Detmar, R. H. Spalding. *Division II.—History of Architecture.*—G. S. Nicol (certificate and book), H. Badcock, S. E. Barrow. *Materials, their Nature and Application.*—H. C. Trimmell (certificate and book), H. Badcock, G. S. Nicol. *Stresses and Strains.*—G. S. Nicol (certificate), F. J. O. Smith, T. W. Aldwinckle, jun. *Construction.*—P. Morris (certificate and book), H. C. Trimmell, G. S. Nicol. *Hygiene (Drainage and Water Supply).*—F. J. O. Smith (certificate and book), T. W. Aldwinckle, jun., H. C. Trimmell. *Hygiene (Materials and Construction, Ventilation, Lighting, and Heating).*—F. J. O. Smith (certificate), G. S. Nicol, T. W. Aldwinckle, jun. *Specifications and Estimates.*—S. E. Barrow (certificate), H. C. Trimmell, T. W. Aldwinckle, jun. *Professional Practice.*—T. W. Aldwinckle, jun., G. S. Nicol, S. E. Barrow. *Elementary Class of Design.*—F. N. Reckitt (silver medal, with scholarship value £5 5s. and certificate), C. L. Brierley (bronze medal and certificate), T. F. Green (hon. mention and certificate), J. S. Lee (hon. mention).

In Central London it seems hardly possible to make any building alteration of importance without disturbing some memorial of the mighty dead, and perhaps there is no place more liable to a disturbance of this kind than Leicester Square, which is a very gold mine of historic associations. In clearing away old buildings to make room for the new additions to the Dental Hospital, the house is threatened in which Sir Isaac Newton once resided.

The new Royal County Theatre, Kingston-on-Thames, which has been in course of erection during the past six months, was opened a few days ago. The building has been constructed to accommodate about 1250 persons, and is a two-tier house, divided into orchestra stalls, dress circle, pit, and gallery, with four private boxes to accommodate sixteen persons. Special attention has been devoted to the exit doors, all of which have been fitted with a panic bolt, which, while resisting pressure from without, yields to the slightest pressure from within. The stage has been constructed to accommodate the largest productions on tour, the depth from floats to back wall being 41ft., and the clear width 46ft., while the proscenium is 22ft. 3in. wide by 23ft. high. In the decoration of the interior of the building the prevailing tints are ivory, salmon-colour, and gold, and the ceiling has been painted in the floral style, there being a large centre panel with figures. The building is lighted throughout with electricity, about 1200 8-candle power incandescent glow lamps having been brought into requisition. Ample precautions have been taken in case of fire. A connection has been made with the Lambeth Water Company's high pressure main, by means of which a copious supply of water can be poured upon the building from above in case of emergency, and asbestos gas fires will be used in the dressing-rooms.

Professional Items.

BLACKBURN.—Mr. R. C. Christie, has offered to give a sum of £50,000 for the erection of a hall at Owen's College and the completion, as far as possible, of the quadrangle. Two "friends of the College" have offered sums of £10,000 and £5000 towards the cost of erecting and maintaining new buildings for the physical laboratory. A third gift is from Mr. Edward Holt, who sent a cheque for £1500 to defray the cost of the new gymnasium.

BURNTISLAND (FIFE).—At a recent special meeting of the Town Council, Messrs. Swanston and Legge, architects, Kirkcaldy and Burntisland, submitted plans shewing the renewal of the Old Port Wall, which projects into the pavement near Waverley Buildings; the demolition of the out-houses and old dwelling-houses; and the building of a handsome two-storied block extending to the corner, and a similar frontage along part of Rose Street, which were unanimously approved of. The project is the outcome of a recent proposal by the Town Council to open up the east end of the High Street, by coming to an arrangement with the proprietor of the existing building, which has been successfully carried out, so what has long been known as "Kinnell's Corner" will undergo a complete transformation. The work is to be commenced immediately.

CARDIFF.—The foundation-stone of a new Wesleyan Chapel was laid on a site acquired off the Albany Road, Cardiff. The new building will cover a considerable area, and be of quite a different plan to that usually adopted to chapel buildings, so as to use the site to the best advantage. The main elevation will be towards Albany Road, with entrances from Bangor Street. The nave, which will be the width of the site, has a length of 78ft. by 28ft., with side aisles 10ft. wide on each side. The transepts will be 28ft. wide on each side, with aisles the same width as the nave. The only galleries will be over the transepts, with seats for about 140. The accommodation in the body of the chapel will be for about 710, with further accommodation for about thirty-five in the choir. For the present the tower will not be erected, but it is hoped that at a very early date the trustees will see their way clear to complete the scheme by erecting this. In addition to the chapel proper, the following further accommodation is provided: Organ chamber, 18ft. by 12ft.; two vestries on the ground floor, and a large parlour, 36ft. long by 19ft. wide; on the first floor another parlour 28ft. long by 19ft. wide, and a smaller class-room. Ample kitchen and scullery accommodation is provided. The carrying out of this structure forms a new era in chapel building in the neighbourhood, as the old system with ranges of galleries is discarded: in this case the nave will be quite free, with curved and panelled wood ceiling, and it is anticipated that the acoustic effect of this form of construction will be good. The contractors for the building are Messrs. E. Turner and Sons, the architects being Messrs. J. P. Jones, Richards, and Budgen.

CASTLETON.—St. Martin's Church, Castleton, the erection of beautiful stained glass in the great west window of the church has been designed, executed, and erected by Messrs. Wailes and Strang. The subject of the new window depicted is the ascension from Mount Olivet, and extends over the entire window, which is composed of four lofty lights and very elaborate tracery. The Saviour occupies the central upper portion of the window, surrounded by a company of angels; while the eleven disciples are variously grouped below, on the mountain. The figures are almost life-size and draped in rich, though unobtrusive, colours, very careful treatment having been given to their facial expressions. The tracery contains at the apex an imposing seated figure of the Christ in majesty crowned, enthroned, and bearing the orb and cross. Around this figure are depicted cherubim with instruments

of music, and the three great Archangels bearing their respective emblems. The whole appears as one picture framed in elaborate tabernacle work of architectural design. It is said to be one of the finest windows in Lancashire.

DARLINGTON.—The new Technical College recently opened will cost about £13,000. The building is a decided addition to the Architecture of the town. It is in the main thoroughfare of Northgate. The central tower ascends 80ft. from the basement, and the building itself is three stories. It has frontage to the street of about 140ft., and a like extent is covered by a wing on the south side. It has been about a year and a half in erection, the work being carried on by Messrs. Mackenzie of Darlington. The style of the building is Perpendicular Gothic, of the florid English type, which prevailed from 1460 to 1510. The vestibule is a conspicuous and ornamental part of the building. The main building is of brick, with facings, and windows of terra-cotta, and there are two fine figures representing Science and Art, 6ft. 6in. high, surmounting the building. There is, on the semi-basement, workshops for various trades, including wood-work, metallurgy, plumbing, carving, cookery school, laundry, &c. On the ground floor there is the chemical laboratory, class rooms, physical lecture room, administration room, rooms for engineering and drawing classes, optics, &c. The first floor is nearly all given up to Art.

EXETER.—The new church, the foundation stone of which was laid on Tuesday week, will consist of a chancel, with organ chamber on the north side, side chapel and vestries for clergy and choir on the south, nave, with north and south aisles and transepts and south-west tower. The style selected is an adaptation of the English Gothic of the beginning of the 15th century. The walls externally are to be built, between the dressings, in Babbacombe stone, internally in Pocombe. The dressings, window tracery, &c., are to be in Bath stone. The roofs are open-timber ones, constructed in pitch pine, and the floors throughout are to be laid with wood blocks. The windows, generally, are to be glazed with rough cathedral glass of a light shade. The heating is to be by hot water, and, on account of the dampness of the site, the chamber is arranged in an iron tank under the north transept. The ventilation is to be effected through inlets in the sides of the windows, and an exhaust ventilator in the turret over the nave roof. The extension of the transept northward, with additional entrance porch, and other slight alterations, have taken place since the first designs were made. The clerk of works is Mr. T. R. Glanfield. The building will probably occupy a period of eighteen months in erection.

LEEDS.—During the past week Messrs. Wailes and Strang have erected a fine stained-glass window in St. Clement's Church, Leeds. The design, chosen by the committee (out of a large number of designs submitted by competing firms) as being the most beautiful and appropriate, was composed of two female figures emblematical of Peace and Plenty, two fitting subjects illustrative of Her Majesty's long and prosperous reign. The canopies surmounting these figures are designed in architectural work, whilst the bases contain the Royal arms of the United Kingdom of Great Britain and Ireland. In the centre of the tracery, a quatrefoil, is a bust portrait of Her Majesty, wearing her crown; and the rose, thistle, and shamrock fill up the four foils surrounding the portrait.

LIVERPOOL.—Though no official statement has yet appeared to support the rumour of a gigantic scheme of dock improvement and extension at Liverpool, it is now ascertained that the Mersey Docks and Harbour Board contemplates the expenditure of some four millions sterling in dock developments on the Lancashire side of the river. Other central and some south end docks are to be practically reconstructed, with wider entrances, greater depth of water, and increased quay space.

The docks, opened in 1881, were constructed under Parliamentary powers obtained nine years earlier, and it may be assumed that the works now contemplated will be carried on during a series of years.

The fine offices which have been erected in Sir Thomas Street for the Liverpool School Board will not be completed and ready for occupancy before the end of the official year. The work has been pushed forward with all possible speed, but, unfortunately, as in the case of other new public buildings in the city, considerable delay has been occasioned, especially in the internal work, in consequence of labour disputes. Viewed from the street, the building presents a handsome appearance, and of late the beautiful designs with which the stonework is embellished have been greatly admired by the citizens. In addition to the civic device, and the words "Liverpool School Board Offices," prominence is given to the names of the present and past chairmen of the board, which are carved on three tablets.

LONDON.—Mr. R. Horner Hargreaves, solicitor, notifies us of a change of address. His city office will in future be 51 and 52, Aldermanbury, E.C., to where communications should be addressed instead of to 1, Mitre Court, Temple.

In the course of the next few days, the work hitherto carried on at the police station in Seething Lane will be transferred to more commodious quarters. A new police station has recently been erected at the corner of Goodman's Yard and the Minories, and has a considerable frontage in both streets, and especially in Goodman's Yard. It is a fine red brick building, with the principal entrance at the corner of the two streets, the rounded corner being surmounted by a turret. On the ground floor are the charge room, the inspector's room, and the muster room, and opening out of the latter is an apartment for the use of the detectives. Seven cells are provided, cased with white glazed brick, and lighted directly from the inner courtyard, instead of, as is usually the case, deriving their light from a passage. These cells are all heated and ventilated upon the most approved principles. In the basement are the mess-room and a large kitchen, together with the necessary offices and the coat and helmet room. The ground floor contains, in addition to the official rooms mentioned above, a reading room and a large recreation room. It is in the men's sleeping rooms that the greatest change has been made. Instead of the dormitories which are provided at other stations, every man at the Minories will have his own cubicle, a little apartment 9ft. by 6ft., each of which has its own window, and a cupboard in which clothes can be kept. There are three floors of these cubicles, and on each landing there is abundant lavatory accommodation, with a bath room. In all some 65 constables and sergeants can be accommodated at this station, in addition to a housekeeper. The building has been constructed from plans prepared by Mr. A. Murray, the City Surveyor, and the work has been carried out under the personal superintendence of Mr. T. R. W. Mossman, of the City Surveyor's office.

For some time past complaints have been made by various occupiers of premises in Queen Victoria Street of the effect which the recent operations of the City and Waterloo Railway have had on buildings in the street. The tunnel from the south side of the river has now been bored under the whole length of the street, and in many of the buildings at the eastern end subsidencies have been noticed. A crack observed some days ago in the topmost portion of a high wall in Mansion House Chambers was subsequently found to have developed to alarming proportions, while the building and frontage were seen to have perceptibly subsided. Efforts were made at once to prevent further damage by shoring up the building. A few days ago the engineers of the City and Waterloo Railway made a thorough survey of the various premises said to have been affected, and made arrangements for remedying the dangerous position of affairs.

PAIGNTON.—The new Church of St. Andrews at Paignton is built in freely treated French Gothic of the 14th century style. It is constructed of red brick burnt from clay in the parish, with dressings of Ham Hill and Bath stones. The shafts supporting the fine arcades that divide nave and aisle are of Purbeck marble, and the clerestory windows have also pillars of the same material. The roofs are hammer beam ones of massive timber covered in with red tiles. The tracery of the windows is of Flamboyant character. The floors of the nave and aisles are of wood blocking with red tiles in all the avenues and approaches. The chancel floor is of mosaic, and that of the sanctuary polished Devonshire marble. The roofs of the chancel and chapel are of oak, and that of the tower has groined stone vaulting. The stalls are of carved oak. The most imposing feature in the new building is the splendid inlaid and sculptured marble pulpit. No church in Devon contains a more beautiful one, and it is doubtful whether either the Cathedral pulpits are so richly ornate. It is of Byzantine character, reminding the traveller and tutored eye of the superb old pulpits to be found in some of the Cathedrals in sunny Italy. In the main it is made of rare and inlaid Devonshire marbles, although yellow magnesium limestone is also introduced, especially in the approach. The body of the rostrum is supported by a group of polished marble columns, and the cants are of inlaid marbles. At each angle are canopied niches in solid marble, having golden tesserae inlaid backgrounds. These niches contain sculptured statuettes in white Castellino marble. In the panel immediately beneath the preacher's desk is a carved representation of the crucified Christ, also in pure white marble. This splendid pulpit is the handiwork of Messrs. Harry Hems and Sons, of Exeter. The old font, however, has the greatest claim upon all lovers of antiquity and of the historical associations of our English Church. The old bowl is early Norman, wrought by some cunning hand in Paignton red sandstone during the latter days of the reign of King William the Conqueror. It is circular, richly carved, and ornamented by cable moulds, and that intricate kind of strap ornament which borders so near upon Celtic art. It had in the dark days that are passed been shamefully used, and at last found a resting place in a neighbouring garden, but last year it was happily restored to its original home—the fine parish church of Paignton. The first portion of the church was built by Mr. E. P. Bovey, of Torquay, and the final part by Messrs. Stephens and Son, contractors, of Exeter.

PYECOMBE.—The interesting village church of Pyecombe, at the foot of Clayton Hill, is being put into much-needed repair, and is undergoing a "conservative restoration." The work includes improvements in the seating, new heating appliances, new windows, an enlarged vestry, and other alterations. It is also intended to put stained glass in the east window, and the architects (Messrs. Clayton and Black, of Brighton) have provided for an oak memorial reredos and panelling for the chancel in their plans.

SOUTH SHIELDS.—In the principal thoroughfares of South Shields, the old brick houses, clumsily converted into shops, are gradually disappearing from view, and in their places large and stately buildings are springing up from time to time in various directions. King Street, the principal thoroughfare, has been undergoing quite a transformation during the last twenty-five years, and handsome architectural adornments have also been appearing in many of the adjacent streets. The demolition of old property to provide space for the widening of the important thoroughfares, which the Parliamentary Bill of the Corporation has given them power to carry out, will result in the replacing of many unsightly places by ornate structures that will greatly enhance the architectural attractions of the town. Mr. Farquhar M. Laing, of Newcastle, is one of the earliest to take advantage of the prospective street improvements; and in view of the

widening of Mile End Road from 30ft. to 50ft., Mr. Laing has already commenced operations in connection with his valuable corner block of property which runs from Ocean Road up Mile End Road to Stanhope Street. The new buildings are practically an extension of the premises, comprising the hall and retiring-rooms which were opened in 1891. Mr. J. H. Morton has prepared designs for the new buildings, which will consist of a handsome block in Mile End Road, immediately behind the Royal Hotel; a quantity of tenemented property, together with the old North-Eastern Hotel, has been razed to the ground to make way for the new erections. The hotel will be a roomy structure, thoroughly equipped in every department; rooms adjoining, and with large club rooms and a number of smaller apartments above. Adjoining the hotel will be erected a number of shops, extending to Stanhope Street, the floors above comprising suites of offices which will be adapted for mercantile and professional men. The whole of the new premises are being so constructed that at any future time, if necessary, they may be made to form an extension to the Assembly Hall already referred to. The buildings when completed will form a handsome addition to the Architecture of the town, and will greatly add to the beauty and appearance of what has hitherto been a much neglected though important thoroughfare. The building has been entrusted to Mr. Robert Allison, contractor.

THORNHILL.—The new church in course of erection in Thornhill is in the Gothic style of the decorated period, and the principal feature of the main gable, which fronts the centre of the street, is a large four-light window, with richly-moulded tracery head. This window lights the end gallery, and under it are two double-light windows with cusped heads. At the side of this gable is the main entrance, formed by a stone porch with a deeply-moulded arched doorway. From this porch doors open into the area of the church and to the gallery staircase. This staircase is placed in a square tower which rises at the side of the church behind the porch, and is carried to a total height of about 60ft. The lower portion is quite plain, relieved only by narrow lancet windows to the staircase, but the upper stage has four double-light traceried windows with moulded arches and hoods, and the flanks are relieved by moulded sunk panels with cusped heads. The side elevations show a series of single-light windows with cusped heads, and the hall and vestry buildings at the back are in keeping with the church. Internally, the church will be roofed in a single span, with moulded timber main couples carrying a semi-octagonal ceiling. The principal timbers will be dressed and exposed; the ceiling between these is finished in plaster. There will be a gallery at the end only, facing the pulpit, which will be placed on an open platform, having the choir on a lower platform in front. Above the pulpit is a three-light window, which it is proposed to fill with stained glass. The church is being built of red stone from Gatelawbridge quarries, and will be slated with light-green Cumberland slates. The total cost will be about £1900. The architect is Mr. John B. Wilson, Glasgow. The following are the contractors for the various works: Mason, Mr. James Cook; joiner, Mr. W. McClane; plumber and heating, Messrs. P. Drummond and Son; plasterers, Messrs. Waugh and Nish; slater, Mr. J. Corson—all of Thornhill; painters and glaziers, Messrs. A. and H. Gilchrist, Kilmarnock.

GOLCAR.—The recently-opened Board school in Crow Lane has been erected from the excellent plans and under the supervision of Mr. Jos. Berry. The school, which comprises mixed and infants' departments, has a central hall 54ft. 3in. by 32ft., and five classrooms. The school is so arranged that if the mixed department should at any time require to be enlarged, two classrooms can be added, which will provide additional accommodation for 100 children. The floors are laid with wood blocks on concrete. All the dados are of glazed

bricks, finished with a moulded capping. Rising galleries are formed in all the classrooms, which are fitted up with deal desks and cupboards. The schools are heated with hot water on the low pressure system by radiators, and all the rooms are airy and well ventilated. The names of the various contractors are: Mason, Mr. William Holroyd; joiner, Mr. William Lockwood; plumber and slater, Mr. Thos. Allison; plasterer and painter, Mr. Dan Shaw; whitesmith, Messrs. G. S. Scholefield and Son; concrete, wood-block flooring, and stone asphalt macadam, Mr. John Cooke; ironwork, Messrs. Joseph Taylor and Sons; heating apparatus, Mr. F. Milan.

A NEW NORTHERN COLLEGE.

THE new Technical College and Public Hall which have been built in West Hartlepool were opened recently. The style of architecture is Tudor-Gothic. Plain treatment has been observed, but by proportion and effective arrangement of break in the frontage a picturesque group of buildings has been secured. The Technical College is entered from Sander Street through a porch and vestibule, fitted with handsome stained-glass screens, displaying the arms of the borough. The vestibule gives access to a fine, well-lighted staircase-hall, square in shape, having wide corridors branching off right and left, the former being to the technical subject classes, comprising engineering, plumbing, and carpenters' and joiners' workshops, together with class and cloak rooms, while that to the left gives access to rooms allotted to the secretary, the committee, etc. The corridor to the left likewise leads by a branch to the physical laboratory, balance and combustion rooms, and also to the large public hall ante-rooms, or platform saloon, from which it is separated by a glazed screen partition with folding doors. Returning to the entrance hall, from the first landing of stone staircase, the chemical laboratory is entered, a fine, large room, having windows on both sides. The whole of the first floor is devoted to class rooms, and is provided with cloak rooms and a large lecture theatre, while the top floor is entirely given up to Art, the rooms being specially designed to be lighted from the north, and are all exceptionally fine, lofty apartments, well suited to their several purposes, which include elementary, antique, and life classes, geometry, drawing, &c. In the semi-basement are large storage rooms, heating chamber, &c., all well-lighted. The public hall is on the ground floor, and has no less than five direct entrances from the surrounding streets in addition to the door from the school premises adjoining, thus securing absolute immunity from crush or panic. The main entrance, which is flanked by two picturesque octagonal turrets rising above the doorway, is from Hart Road through porch and vestibule to a capacious foyer or saloon, from which retiring rooms open right and left. Glazed screens with folding doors at either end of this saloon lead to the gallery staircase of polished hard stone, while further staircases at the opposite corners, at the platform end of the hall, make together four staircase approaches with a total width of 20ft., should rapid exit from the gallery be necessary. The hall is capable of seating about 1500 persons, and is excellently adapted for the purposes required. Polished grey granite columns, with Robin Hood hard stone caps, bands, and bosses, support the gallery, and the same are continued up in cast-iron tapering shafts with gilded capitals to support the roof, which is of special construction, and gives an admirable effect of height inside. The ceiling is panelled in polished pitch pine and plastered between the ribs, while adequate ventilation is assured by large ornamented gilded openings leading to a large trunk in the roof to carry off vitiated air, fresh air being introduced by regulated openings in the side walls. The architect is Mr. H. A. Cheers, of Twickenham, and the contractor for the building, Mr. Thos. Dickinson, of Middlesbrough. The building has cost, including site and fittings, about £16,000.

THE WINTER SESSION.

"ARCHITECTURE OF THE VICTORIAN ERA."

THE opening meeting of the second half session of the Edinburgh Architectural Society was held a few days ago. Mr. J. A. Williamson, the president, gave his opening address, entitled, "Architecture of the Victorian Era," in which he sketched in outline the various phases through which Architecture had passed during the Queen's reign, bringing the history down to the latest date. The net result, the lecturer pointed out, of the architectural activity of the last sixty years was that, compared with any former time, there was a greater wealth and variety of models to select from. But, at present, a stage of architectural licence had been reached in which Gothic and classic forms and features were blended with surprising ingenuity, which the lecturer considered might defeat its own object, ending in reaction towards more archaic forms.

MATTERS ARCHITECTURAL AT SHEFFIELD.

The opening meeting of the winter session of the Sheffield Society of Architects and Surveyors was held at the School of Art on Tuesday week. The President, Mr. E. W. Fowler, in his inaugural address, said amongst other things they were desirous of securing a habitation of their own; but, so far, owing to want of funds, that had been impossible to obtain; and following that, the collecting together of a library of professional and scientific works, a commencement with which had already been made. During the past session valuable and interesting lectures had been delivered, and beyond that good work had been done on behalf of the society. The conditions of competition for School Board work were not at all satisfactory, and the council appointed a deputation, consisting of Messrs. Hadfield, Gibbs, and Innocent to discuss the matter with the Board. The result of their interview had been to obtain an increase in the architects' fee from 6s. to 7s. 6d. per head of school accommodation, and some alteration in the conditions. The Corporation made formal recognition of the society by throwing open to the members of it practising in Sheffield a competition for a Fire Brigade Station, and also appointed its officers as assessors. The conditions of the competition, which were prepared by Mr. Innocent and settled by him and Messrs. Gibbs and Hadfield, had been highly approved of by other kindred societies. On this subject he pointed out the advantage accruing to the Corporation from throwing open such competition to their body, instead of employing an architectural staff of its own, whose services could not always be in requisition, and who yet must necessarily be a permanent expense. They thus obtained the talents of practically the whole architectural profession in the neighbourhood, with very beneficial results, not only to themselves, but to the ratepayers at large. The tendency of Corporations nowadays was to concentrate the work of a town in the hands of their own body, and employ their own workmen to carry it out. That was not economical they all knew, and whether it resulted in greater efficiency was a matter of controversy. The past year had been one of considerable prosperity in the city, in which, judging by the lengths of the new roads opened out, and the number of new houses in course of erection, their profession had certainly had its share. Whether this prosperity would continue, or whether the present disastrous strike which is paralysing the engineering industry may retard it, was not wise to prophesy.—A hearty vote of thanks was accorded to the President for his address, on the motion of Mr. E. Winder, jun., seconded by Mr. J. B. Mitchell-Withers, and supported by Mr. E. M. Gibbs.

THREE places of worship in Thornton have been supplied with new organs during the present year.

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

THE PRESERVATION OF PARCHMENT.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you inform me through the medium of your Enquiry Department as to the best means of preserving the old parchment documents of this borough? What is needed is a room about 5ft. square, but the problem is how to secure that amount of dryness which is necessary for the preservation of the documents.—Yours truly,

C. F. M.

Godmanchester, Sept. 9, 1897.

Your query raises two points: firstly, as to position; secondly, as to ventilation. Your first care should be to secure a suitable position, and then, if possible, to provide a simple means of ventilation. We take it that you do not literally mean a room when you speak of a place 5ft. square, and assuming that the place of storage is movable—a large cabinet, for instance—your aim would be effectively attained by raising it a few inches from the ground, and securing an inlet and outlet by making holes in the bottom and the top. In any case, ventilation is your remedy, and if this is not attainable, your place of storage is at once defective and wrongly placed. Your only expedient then would be to provide a stove or other heating apparatus. Care should be taken at the outset, however, that the parchments are thoroughly dried, as otherwise ventilation or heating would soon cause serious damage.

PUBLIC APPOINTMENTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly inform me, through the medium of your valuable journal, of the best means, to your knowledge, of obtaining an appointment as a surveyor's assistant under a public body, i.e., a District Council. I am at present an assistant in a private office. What examination do you consider could most profitably be passed as a qualification for such a post? Thanking you in anticipation—Yours truly,

"DORIC."

With the exception of Government appointments and those for district surveyors in London, there are no qualifying examinations for posts such as those you refer to, the selection being generally made from the applicants on the ground of their suitability to the requirements. The following certificates would probably assist your chances of success: Science and Art Department, Building Construction (Advanced or Honours), Hygiene (Advanced); Sanitary Institute examinations for Associate Membership and Sanitary Inspectors; Surveyors' Institute, qualifying examination. There is a very good school at Brighton in connection with the Science and Art Department. The Sanitary and Surveyors' Institutes will forward particulars of their examinations on application.

It has been decided to build a fourth asylum almost equal in size to those already belonging to the county of Lancaster. This new institution, for which a large site has been purchased, will be situated at Winwick, near Warrington. The contract for the building has just been given to Mr. Robert Neild, of Manchester, for £253,000. The electric lighting will cost a further sum of £14,000.

Trade and Craft.

THE ART OF JERRY BUILDING.

At the Wallasey Petty Sessions, Robert Kettles, Erskine Road, Seacombe, builder and contractor, was summoned at the instance of the Wallasey Urban District Council for having broken a certain bye-law governing the construction of the walls, foundations, roofs, and chimneys of new buildings, and for neglecting to cause the brick walls of eight new houses in Erskine Road to be properly bonded together. There was a further summons in respect of one of the houses for allowing the upper part of a wall to overhang the part beneath.—Mr. W. H. Travers, surveyor to the Council, stated that the walls, generally speaking, were not properly put together or properly bonded. Many of the courses were far from being horizontal, and the walls in many cases were not vertical. Many of the joints were without mortar, so that a rule could be passed six or eight inches into the wall in places. One inside party wall could be seen through. A number of photographs showing the defective construction were produced, and one of these showed four or five courses built of nothing but broken bricks.—Mr. Preston remarked that it seemed to him that there was scarcely a whole brick in the house.—Mr. Madden, for the defendant, asked that the cases might be adjourned in order that his client might comply with the requirements of the Council, but the Bench declined to take this course, and inflicted a penalty of 40s. in each of the nine cases, or £18 in all. The defendant was also ordered to pay 8s. 6d. costs in each case.

MESSRS. W. COOPER, LTD.

"Who loves a garden loves a greenhouse too"—and who loves a greenhouse and is about to carry out a scheme of erection may as an amateur be much facilitated in his project by a visit to Messrs. Wm. Cooper, Ltd., 755, Old Kent Road, S.E. We have received a copy of the firm's catalogue, and its contents and illustrations show how completely the firm's operations cover the field of horticultural providers. Greenhouses and conservatories of almost every conceivable kind are herein shown, possessing features and improvements which recommend themselves as much to the architect on account of their artistic excellence as to the practical horticulturist for their utilitarian merits. Messrs. Cooper, Ltd., show several designs of greenhouses for amateurs, and following them come plain and ornamental designs for villa and other conservatories. Greenhouses, however, constitute but one branch of the firm's many-sided activities, and its works in the Old Kent Road—the home of greenhouse builders—forms a happy hunting ground for the horticulturist who here meets with every kind of implement and object required in the garden. There is a striking variety in the catalogued collection of fowl and pigeon houses, whilst there is quite an artistic wealth about the designs for summer and lawn tennis houses. Garden seats and rustic armchairs, and, in fact, garden furniture of every description, are well represented; and in skipping the section devoted to heating and sanitary apparatus, we pass beyond the confines of the garden altogether into the more important sphere of church, school, and hospital work, for Messrs. Cooper's catalogue contains designs for iron churches, mission halls, and hospitals, not to speak of country and seaside residences (some in the bungalow style), cricket pavilions, workshops, &c. Of course, these structures recommend themselves chiefly on economic grounds, but happily economy is not secured at the expense of the design; in fact, Mr. Cooper shows that a good design is as cheap as a bad one.

A BUILDING TRADES' CONFERENCE.

A meeting of representatives of the above trades, to consider the best way in which the Craft School could supply the needs of the London building trades with regard to technical education, was held a week ago in the

workroom of the school in Globe Road, E. The chair was occupied by Mr. Llewellyn Smith, who, in his address, observed that, whatever might be the feeling with regard to the changes that had come over the country with regard to apprentices, there would be no contention as to the need of centres where workmen could have an opportunity of perfecting themselves in the various branches of their trades. The object of the classes for the building trades was for the training of workmen, and not for the amateur, for they were of opinion the two could not be successfully mixed up together. A very considerable number of workmen in the district already took advantage of them, and the object of the conference that evening was to obtain suggestions as to the best means of making the classes useful and more widely known. All the suggestions that were made would be most carefully considered by the committee, with the desire, so far as practicable, of carrying them out, so as to make the school more useful to the centre of the great building trade.—Mr. George Dew said the time had come when, as trade unionists, it was their duty to get lads to go into the classes. It was only by these the younger ones could obtain knowledge. The building trade had changed, and the title of "master craftsmen" no longer belonged to their employers. That was unavoidable in the ordinary system of economy, therefore it was necessary to do more than was at present being done.—Mr. Holloway, as an employer of the building trades, said he had considerable sympathy with institutions of that character. While not suggesting anything that would enlighten the committee, he fully realised there was great room for improvement in the skill of their mechanics. Employers were under a deep debt of gratitude to the chairman, who gave his time in promoting the success of the institution. He deplored the fact that the system of apprenticeship had fallen out of practice, but his firm kept it up, for the apprentices turned out the best mechanics. As an encouragement to lads in his firm, on the completion of their apprenticeship, if they had behaved themselves during that term, they received £5 to set themselves up with a set of tools. Such an encouragement was an inducement to lads to take up an apprenticeship; and institutions like that school ought never to take the place of apprenticeship, but simply to augment it. He concluded by suggesting that the foremen should be invited to visit the classes.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BARNARD CASTLE.—For the erection of a farmhouse at Arlaw Banks, near Barnard Castle, for the Rev. Henry Lonsdale. Mr. F. H. Livesey, architect, Market-place, Bishop Auckland:—

R. Wilson	£670 15 0	J. Hepworth	£513 3 6
G. Scott	645 15 0	R. and S. Adamson, Gainford	450 0 0
Robinson & Addison	604 9 9	J. Tyreman	171 2 11
J. Kyle and Sons	600 0 0	J. Wainwright	31 7 6
J. Hetherington	576 2 6	J. Harrison	30 3 0

* Accepted. † Separate builders tendering together.
‡ Carpenter, joiner, plumber, painter, and glaziers' work.
§ Tiler.

BIRKENHEAD.—Accepted for flagging, paving, channelling, and sewerage of various passages, for the Corporation. Mr. C. Brownridge, Borough Engineer and Surveyor, Town Hall, Birkenhead:—

P. Gaven, Fym-street, Birkenhead	£39 5 0	£24 5 7
W. F. Chadwick, Great Howard-street, Liverpool	97 13 6	101 14 0
Thos. Horrocks, Greenwhich-road, Walton, Liverpool	58 9 10	64 7 9

BRENTFORD.—For works at the pumping station, Town Meadow, for the Urban District Council. Mr. Nowell Parr, Engineer and Surveyor to the Council, Cliftens House, Boston-road, Brentford:—

J. Brooking	£296 0	Forde and Hudson	£850 0
F. and H. F. Higgs	850 0	Godson and Son, Kilburn-lane, W.	750 0
Forde and Sons	810 0		
J. Barnes	880 9		

[Surveyor's estimate, £875.]
FORRES.—Accepted for additions to the Cluny Hill Hydropathic Establishment, Forres, and for supply of grates. Mr. J. Forrest, architect, 129, High-street, Forres:—
Masonry.—David Ross, Tolbooth-street, Forres
Carpeting.—James Smith, South-street, Forres
Slatting.—Jas. Gray and Son, Inverness
Plastering.—Angus & Ross, Orchard-road, Forres
Plumbing.—Boyne and Martin, Caroline-street, Forres
Painting.—Archibald Macdonald, High-street, Forres
Glazing.—Archibald Macdonald, do.
Blacksmithing.—W. Smith and Son, High-street, Forres
Grates.—W. Smith and Son, do.

BRISTOL.—For the construction of two new streets, with sewers and boundary wall, at Pile Marsh, St. George.—
Lloyd and Son £565 0
W. Mereweather 390 0
Thatcher 294 13 0
George* 257 13 4
*Accepted.

FOREST GATE.—For the erection of Masonic Hall, buffet, &c., at the "Princess Alice" hotel, for Mr. James Copper. Mr. Henry Poston, architect, 39, Lombard-street, E.C.—
J. Mowlem and Co. £8,224
W. J. Maddison 8,020
G. Todd and Co. 7,989
*Accepted.

HAWARDEN.—For the erection of county school. Messrs. Grayson and Ould, architects, 31, James-street, Liverpool. Quantities by Mr. E. W. Nobbs.—
H. Willcock and Co. £3,466
Thos. Brown 3,306 0
Jones and Sons 2,970 0
G. Woods and Sons 2,891 0
T. J. Reney £2,847 0
W. and T. Bailey 2,687 14
W. and T. Bailey 2,548 5
*Accepted.

HUDDESFIELD.—For erecting a dwelling-house, William-street, Crosland Moor. Mr. J. Berry, architect, 9, Queen-street, Huddersfield.—

Masonry.—J. H. Brook, Haddock.
Joinery.—Geo. Ainley, Crosland Moor.
Plumbing.—Sanderson Bros., Lockwood.
Plastering.—G. H. Day, Milnbridge.
Painting.—T. Cartwright, Crosland Moor.
Slatting.—Pickles Bros., Huddersfield.
Concreting.—John Cooke, Little Royd.

HUDDESFIELD.—For the erection of new offices and extensions to mill, for Messrs. B. Hulme and Sons, Ltd. Mr. J. Berry, architect, 9, Queen-street, Huddersfield.—

Masonry and Joinery.—B. Graham and Sons, Folly Hall.
Plumbing.—D. Taylor and Sons, Lockwood.
Plastering.—N. Jessop and Son, Berry Brow.
Painting.—J. H. Stiffard, Huddersfield.
Slatting.—E. and B. Arnold, Berry Brow.
Ironwork.—J. & J. W. Longbottom, Holmfirth.
Wood Block and Concrete. J. Cooke, Little Royd.

HUMBERSTONE (Leicester).—For excavating and foundation works for additions to Borough Asylum, for Committee of Visitors, Leicester Borough Asylum. Mr. G. T. Hine, architect, 35, Parliament-street, Westminster.—
H. Lovatt £10,443 0
Bentley & Lock 10,090 18 5
Mason and Son 10,062 13 2
E. Fox 9,169 0 0
Haycock and Son 9,104 0 0
H. Hubert £8,397 0 0
Johnson & Son 8,044 19 2
Moss and Son 6,335 17 8
Loughborough* 6,335 17 8
*Accepted.

LLANDUDNO.—For the erection of electric lighting and refuse destructor buildings, for the Urban District Council. Mr. E. P. Stephenson, engineer to the Council, Llandudno: Gledhill and Samuel Warburton.
Thomas £7,850 10 8
Evan Roberts & Son 6,891 0 0
R. Luther Roberts, Llandudno* 5,004 13 6
*Accepted.

LONDON.—For erecting residence chambers, &c., Ormond-yard, St. James', W., for Mr. Georges Lawes. Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Wall and Co. £5,076
Lascelles and Co. 5,041
W. Rowe 4,935
T. Hooper 4,875
H. L. Holloway 4,790
H. Minter £4,600
Burman and Son 4,528
Richthard & Renwick 4,386
Courtney & Fairbairn 4,347

LONDON.—For the erection of new shops, flats, &c., at 24, King-street, St. James', S.W., for Mr. W. J. Purser. Mr. Walter Hearn, architect, Grove Park West, London, W. Quantities by Mr. W. Thompson.—
Lorden and Sons £5,965
Beer and Gash £5,823
Bywater 5,965

LONDON.—For rebuilding the "Jolly Coopers" public-house, Clerkenwell-close, E.C., for Mr. J. Cambden. Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—

Structural.
Courtney & Fairbairn £2,451
Godson and Son 2,425
W. Smith 2,417
Wall and Co. 2,397
Dearing and Son 2,275
R. E. Clarke* 2,205
*Accepted.

Fittings.
Antill and Co. £749
Lascelles and Co. 718
R. E. Clarke 685
Brown and Co. £628
Burman and Son 588

LONDON.—For structural rebuilding of the "Falcon" public-house and offices, Falcon-square, E.C., for Mr. A. C. Locke. Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
T. Hooper £4,959
Wall and Co. 4,872
Godson and Son 4,800
Courtney & Fairbairn £4,776
H. L. Holloway 4,700
Edwards and Medway* 4,677
*Accepted.

LONDON.—For alterations to the "King and Queen," Newington Butts, S.E., for Mr. W. H. Burney. Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—

Structural.
Minter £2,451
Courtney & Fairbairn 3,305
Pritchard and Renwick 3,250
W. Smith 3,179
Edwards and Medway £2,347
Biggs and Co. £154 2
W. Winn 139 7

Gasfittings.
Buckley and Beach £103 14
W. Winn 139 7

Painting.
J. Warne and Co. £92 10
H. and F. Warne £85 17

LONDON.—For the erection of a store building at the Barking outfall works, for the London County Council.—
Thomas & Edge £2,490 0 0
G. Sharpe 2,363 0 0
G. Munday and Sons 2,249 17 8
H. H. Sherwin £2,170 0 0
E. Proctor 2,141 0 0
J. Jackson 2,000 7 0
*Accepted.

LONDON.—For alterations at the "Branksome Arms" public-house, Branksome-road, Acre-lane, Brixton, S.W., for Mr. Henry Guy. Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
B. Crook £695
T. Hooper 679
Little and Senecal* £590
*Accepted.

LONDON.—For alterations to the "Wag's Head Tavern," Leather-lane, Holborn. Mr. Chas. R. Winter, architect, 119, Finsbury-pavement, E.C. Quantities by Mr. Henry Theobalds, 48, Finsbury-pavement, E.C.—
Lawrence and Sons £1,847
Burman and Sons 1,837
Sparkes and Sons 1,837
Todd and Co. £1,783
Lascelles and Co. 1,781
Elkington & Co., Dalston* 1,630
*Accepted.

LONDON.—For a new police-station at Lewisham, for the Receiver of the Metropolitan Police District. Mr. J. Dixon Butler, architect. Quantities by Mr. W. H. Thurgood.—
Lawrence and Son £9,257
Holloway Bros. 8,148
Smith and Son 8,107
Perry and Co. 8,045
Grover and Son 8,023
Lascelles and Co. £7,998
Higgs and Hill 7,894
Batley Bros. 7,850
Graham and Co. 7,800
Sydney Hart 7,487
*Accepted.

LONDON.—For painting, &c., at "The Prince of Wales," Stratford, E. Messrs. C. Foulsham and Herbert Riches, joint architects, 35, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.—
W. G. Brown £199 15
T. Osborn and Sons 174 0
J. T. Robey £219 13
J. T. Robey* 131 12
*Accepted.

LONDON.—For the erection of stabling, warehouse, &c., at Rolls-buildings, Fetter-lane, E.C., for the London Parcels Delivery Co. Limited. Mr. Henry Poston, architect, 39, Lombard-street, E.C.—
Colls and Son £19,044
G. Todd and Co. 12,873
J. Mowlem and Co. 12,800
Patman and Fotheringham £12,241
Hall, Beddall, & Co.* 12,130
*Accepted.

LONDON.—For the rebuilding of the "Railway Tavern," Bridge-road, Stratford, for Mr. W. Davis. Mr. Henry Poston, architect, 39, Lombard-street, E.C.—
Hearle and Farrow £4,678
W. Norton 4,655
W. J. Maddison £4,552
T. Welsh and Son* 4,369
*Accepted.

LONDON.—For the erection of additions to gas-house at the East London Soap Works, Bow, E., for Messrs. Edward Cook and Co. Mr. Henry Poston, architect, 39, Lombard-street, E.C.—
W. Shurnur £808
T. Welsh and Son £81
Yates £791
J. Outhwaite and Sons* 790
*Accepted.

LONDON.—For converting No. 1, Grange-street (Gopsall-street), into a schoolkeeper's residence, for the London School Board. Mr. T. J. Bailey, architect.—
J. Grover and Son £410
W. Shurnur 395
W. Martin £350
E. Lawrance and Sons £357
G. Wales* 250
*Accepted.

LONDON.—For overhauling apparatus and providing additional heating surface and relief mains, at Blundell-street Schools, for the London School Board. Mr. T. J. Bailey, architect.—
J. C. & J. S. Ellis, Lim. £195 0
J. Defries & Sons, Lim. 176 0
J. Wontner-Smith, Lim. 120 0
Gray and Co. 148 10
J. Grundy 120 9
Duffell and Co. £123 0
Vaughan and Brown, Lim. 120 0
G. Davis 118 0
W. G. Cannon & Sons* 107 0
*Accepted.

LONDON.—For providing and fixing sectional boiler an auxiliary heating in three class-rooms, infants' department, and fixing hot-water radiators in corridors, boys', girls' and infants' departments, at Lyham-road Schools, for the London School Board. Mr. T. J. Bailey, architect.—
Strode and Co. £229 0
Ward and Co. 213 14
C. Seaward and Co. 210 0
Russell and Co. 194 0
A. H. Skinner and Co. 193 0
W. Truswell and Son £187 0
Duffell and Co. 172 0
Turner and Co. 166 10
E. Oldroyd and Co. 134 0
*Accepted.

MARGATE.—Accepted for the erection of a pair of villas, Second Avenue, Clifton-Ville, Margate, for Mr. W. J. Grimes. Mr. W. M. Bruton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.—
Brown and Son, Margate £2,950

MORECAMBE.—For sinking a well, 12ft. in diameter, in Acre Moss Field, for the electric light works, for the Urban District Council. Mr. J. Bond, surveyor, Council Offices, Morecambe.—
Joseph Preston, Bruntcliffe, near Leeds*
John Edmondson
Alexander Tomlin
J. Ford
E. Timmins and Sons, Limited
*Accepted.

NEWBURY.—For additions to the Atlas Brewery, for the South Berks Brewery Company. Mr. J. H. Money, architect, The Broadway, Newbury. Quantities by Messrs. R. L. Curtis and Sons, London-vale, Moorgate-street, E.C.—
E. and H. James £1,100 14
Pope and Co. 965 12
George Elms and Sons 965 0
McCarthy E. Fitt, Reading* £2945 0
W. J. Bloxham, Banbury 0 0
*Accepted provisionally. Incomplete.

PLYMOUTH.—For the heating and ventilating of Municipal Buildings, for the Corporation. Mr. James Paton, Borough Engineer, Plymouth.—

Russell and Co. £1,999 0 0
Sugg and Co. 1,901 0 0
J. King 1,657 0 0
E. Oldroyd and Son 1,635 4 3
Wood and Co. 1,626 4 9
Garten and King £1,414 0 0
Berry and Campbell 1,306 0 0
W. T. Hocking, Plymouth* 1,194 0 0
Langfield & Co.† 610 0 0
*Heating only. †Accepted.

READING.—For levelling, paving, curbing, &c., Cranbury-road, for the Sanitary Authority. Mr. J. Bowen, Borough Engineer and Surveyor, Town Hall, Reading.—
W. Reeves £1,442 15 0
Free and Sons 772 10 0
F. Talbot 758 13 0
R. Pilgrim, Reading* £647 15 0
*Recommended for acceptance.

RESOLVEN.—For the erection of new schools for the Resolven School Board. Mr. J. Cook Rees, architect, St. Thomas-chambers, Church-place, Neath. Quantities by architect.—

D. Davies, Cardiff £2,750 0
Rowland and Lloyd, Trearlaw 5,095 0
Thomas Watkins and Co., Swansea 5,094 5
Bloxham, Banbury 4,907 0
W. Daniel, Crynant 4,888 16
E. Thomas, Seven Sisters 4,850 0
D. W. Rosser, Llansamlet 4,830 0
D. Jenkins, Swansea 4,699 0
Bennett Bros., Swansea 4,635 0
W. Williams, Pontypridd 4,407 0
H. Morgan, Llandovery 4,220 0
*Accepted.

WALTHAM CROSS.—For the erection of a laundry, dwelling-house, and stables, for Mr. J. Saban. Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
W. Gardener, Waltham Abbey £1,390

WALTHAM CROSS.—For construction of new road, Swan Field, for Mr. R. B. Colvin. Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
W. Griffiths and Son, Bishopsgate-street, E.C. £995

WALTHAM CROSS.—For the erection of stables, for Mr. J. Hamilton. Mr. F. W. Adams, architect, 18, Eldon-street, E.C.—
W. Gardener, Waltham Abbey £500

WEST HARTLEPOOL.—For erecting new premises, Park-road, for the Hartlepool Co-operative Society, Limited. Mr. James Garry, architect, 47, Church-street, West Hartlepool. Quantities by Mr. John Bulmer, West Hartlepool.—
Atkinson & Co. £3,285 11 2
T. Dickinson 3,075 10 0
J. Howe and Co. 2,950 0 0
J. Fryer 2,862 12 4
J. Proud 2,821 19 0
Watt Bros. £2,763 7 7
T. Beetham 2,754 16 0
R. Watt, Thorn-ton-street, West Hartlepool* 2,671 0 0
*Accepted.

WEYBRIDGE.—For the erection of stables at depot in Elm Grove-road, for the Urban District Council. Mr. J. S. Crawshaw, surveyor, Weybridge.—
Stephen Brown £455
Charles Horsell 417
William Greenfield* £390
*Accepted.

WHITCHURCH, Shropshire.—For the erection of two ministers' houses, for the Primitive Methodist Trustees. Mr. J. Harry Pickard, architect.—
John Corfield £865
Geo. Edge (accepted) £835

WHITCHURCH, Shropshire.—For the erection of new workshops, &c., for Messrs. W. H. Smith and Co. Mr. J. Harry Pickard, architect.—
John Corfield £302
E. S. Pickard 255
R. Powell 217
Geo. Dodd £212
George Edge (accepted) 200

WHITCHURCH, Shropshire.—For alterations to residence, new bath-room, &c., for Mr. C. Crosse. Mr. J. Harry Pickard, architect.—
R. Powell (accepted) £92

Plumber's Work.
W. H. Smith and Co. (accepted) £26 5 6

COMPETITIONS.

CITY OF WELLS.

TO ARCHITECTS.
The Council of Wells invite COMPETITIVE PLANS for a large PUBLIC HALL, with Cloak Rooms and Retiring Rooms over the present Post Office, Market House and Fire Engine House communicating with the Town Hall, and for the CONVERSION of the Market House, &c., on the ground floor.

Premiums of £25, £15, and £10 will be awarded for the designs adjudged of sufficient merit and placed first, second, and third in order respectively. The premiated plans to become the property of the Council.

Particulars and plan of the site may be obtained on application to me upon receipt of Three Guineas, which will be returned to Architects submitting plans in accordance with such particulars.

The plans and drawings are to be deposited at my Offices, No. 1, Cathedral-green, Wells, on or before TUESDAY, NOVEMBER 30th next.

Dated, Town Clerk's Office, Wells, October 5th, 1897.
REGD. L. FOSTER,
Town Clerk.

THE DUKINFIELD URBAN DISTRICT COUNCIL are prepared to receive DESIGNS, &c., from Architects of experience for a Town Hall. Cost not to exceed £7000. Premiums of £10 and £20 will be awarded. Conditions may be had on application to Mr. S. HAGUE, Surveyor to the Council.

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A WEEKLY ARCHITECTURAL CAUSERIE.

R.I.B.A. Examination in Architecture. The approaching half-yearly examination of the Royal Institute of British Architects brings to mind the oft mooted question as to whether it is possible to provide any satisfactory test of ability in design. There is no doubt that a competent judge of fairly wide sympathies can arrive at an approximate estimate as to relative capacity in this direction, and he may even, if gifted with exceptional insight, be able to take into consideration the promise of future excellence not as yet completely achieved. Assuming, however, that it is practicable to decide the relative ability displayed in a number of designs, there yet remains the difficulty that, among those submitted in an examination such as that of the Institute, only a very small proportion are of a character really justifying anything of the nature of a certificate of merit. On the other hand, there is plenty of room in the architectural profession for men who are not specially gifted in the qualities productive of beautiful buildings, and the Institute feels the unwisdom of excluding such, many of whom may be of considerable capacity in other directions. It is possible to feel some degree of sympathy with this attitude, but with the course adopted to achieve this end it is impossible to agree; to attempt to examine in architectural design and then to lower the standard till it admits utterly valueless work, seems a blundering method of procedure unworthy of any body having pretensions to the position of an artistic society. "What would you have us do?" may be said. "Would you have us decline to receive all those who fail to display exceptional artistic powers? In that case we should be nearly extinguished." Certainly not, we may reply; it is, of course, necessary that an Institute of Architects should represent all branches of a Profession that, we are well aware, demands many qualifications other than the imaginative faculty and aesthetic training essential to an artist; but to do this it is not necessary that it should say that every member can design when, as a matter of fact, a large proportion can not. Admission to membership could easily be arranged so that it would not appear to the general public, any more than it now does to the Profession, as a testimony of capacity in design, but only as one of practical and scientific knowledge. The former, when deserved, might very appropriately take the form of a higher status in the ranks of the Institute. Prize winners in the annual competition, other competitors who have produced designs of notable merit, and members whose executed works show real power, should be admitted into such a class, and could, after the lapse of a specified time, be entitled to the position now held by the "respectable fathers of families;" in which contingency we might not unreasonably expect the moving spirits of the Institute to display more activity in matters architectural, and not so much in unimportant questions as to the details of professional practice. Only

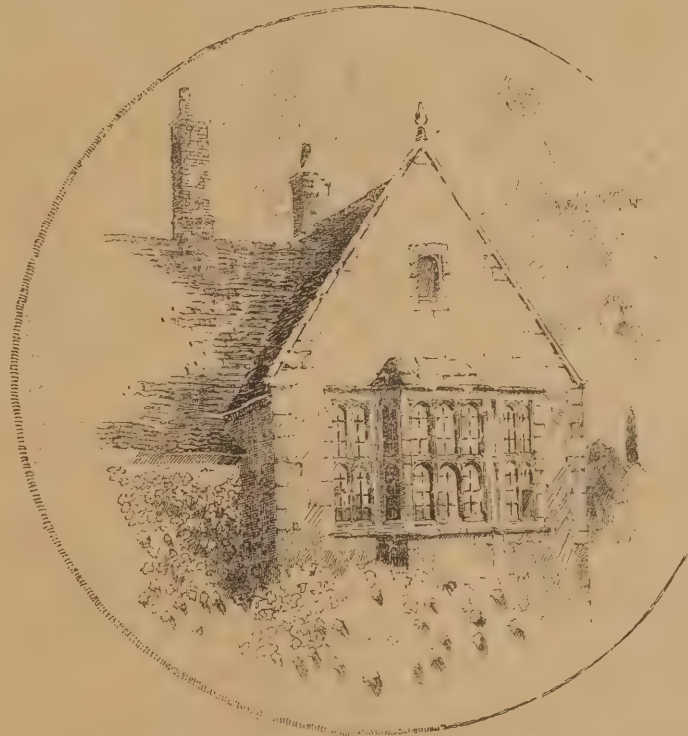
by some such reform as this will the Institute obtain a hold on the best representatives of the Profession, and regain the ground it has lost during recent years, owing to its having alienated so many architects of good repute, particularly among those who look on their work more from the artistic than the commercial side.

H. V. L.

The Science of Sanitary Inspection.

It is much the present custom among architects and builders to be impatient of the sanitary inspector. We think this is a pity; and for two reasons. First, because Patience is a virtue, and the sanitary inspector at his very best, is not deserving that the architect or builder should throw their virtues to the winds on his account. Second, because the sanitary inspector, when taken in the right way, has good points of his own at bottom. The misfortune is—so few having ever succeeded in discovering the right way to take him—that his good points have rarely been hauled up to light. Though there is no doubt that

spur his enthusiasm to further efforts to condemn a drain. He knows he is paid to condemn drains, and his high moral aspiration braces the full flood of his energy and vitality to insure that any drain he has the inspection of is condemned, if mortal man can do it. A healthy sanitary inspector, in the pride and prime of life, newly recuperated by a fortnight at the seaside, and duly armed with his bye-laws, can condemn pretty well anything you can mention; and is, moreover, all tingling to be at it. He keeps the builder's foreman and clerk of works awaiting his advent for a day and a half for principle's sake; springs himself upon the site in the dinner-hour; finds no one, and goes off without a word. After a day or two he acknowledges the protests of the builder by setting his organisms in motion on his behalf. He drives up like a small fire-engine; fastens instantly on to the outfall of the house drains like some ill-omened sort of vampire; lights up his "puffing Billy," as he familiarly terms his smoke machine; dumps a heavy foot upon the escape valve to bring up the pressure; sets a strapping assistant to pump; blows out the seals of the traps in a volcano



LAUNDRY WINDOW, FAWSLEY. SKETCHED BY HERBERT NORMAN.

these points are his own, being, as they are, in point of fact, unique, nevertheless the unfaltering tenacity and invariability of them is apt to pall after a bit. What we ourselves always most relish and admire in the sanitary inspector is his magnificent imperviousness—his vast and stupendous impenetrability to all influences, outside his bye-laws, that may be moved against him. It is very rarely, indeed, that one of them is betrayed from the strict letter of his bye-law, or enticed to deviate even for a moment into the environments of reason; and "reason" is the tasteful way we prefer to spell "sense." Like Achilles, he is all nobly equipped with a hide of stolid unimpressibility, with just one vulnerable spot in the last revised issue of his bye-laws. Nor can we overlook the strong infection of plausibility and enthusiasm in his principles, and whatever else he may be, it is not to be denied that he is thorough. He leaves no stone unturned that may enable him to show the work he supervises to be wrongly done. In a spirit of most meritorious self-abnegation, he binds himself in a high sentiment of duty, and lets nothing pass that may

of smoke and water; gets a general impression of a leak somewhere, and clatters off to report "drains unsound." Or if it be the main drain that is in question he will stand and wait like an ordinary human creature, and watch the drain loaded with water to his direction, till under the abnormal strain, and in absence of the sustaining pressure of the earth, the drain gives it up, heaves aside, bursts at the joints, and fills the trenches with water. In all Science we find the enthusiasm of the master throbbing in the veins of his disciples and protégés, and thus in the clerks and assistants of sanitary inspectors is manifested a huge pulsing emulation of the ponderous dignity of their chiefs, coupled with their same qualities of stolid imperturbation and unflinching adherence to principle in matters apparently superficial and of no consideration. To these must also be added an attitude of praiseworthy activity for "original research" and innovations. Sometimes, indeed, the evidences of "research" seem almost completely lacking beside the overwhelming burst of "originality," as was presented to us lately in the

case of a sanitary inspector who dealt with an outbreak of typhoid and a bad cesspool formed under a London house from leakage of the drain, by setting a manhole and disconnector in the area and ventilating it against the sill of the larder window. But this was not, perhaps, in reality so original as at first appeared, for on investigation it was established (although the turgid state of affairs left some doubt upon the subject) that the sewage ran from the public sewer through the manhole into the cesspool, so that the arrangement had best to be described as a disconnection of the public sewer from the cesspool—obviously a very desirable thing in the circumstances. The work also had been well and carefully done, a half-twist or turn being built in the manhole so that the cover might range parallel with the wall of the house, while the bottom was perforce diagonal to it. We have not heard of any public distinction yet accorded to this enthusiast. However, we await the event expectant. It may be that we shall hear of him in connection with the Maidstone epidemic.

B. C.

An Architect's Staff.

THE building was four floors in height, and stood in the main thoroughfare of the town. A brass plate on a door that opened off the first floor level informed the would-be client that James Meredith was an A.R.I.B.A. and a F.S.I., which interpreted means an Associate of the Royal Institute of British Architects and a Fellow of the Surveyors' Institute, qualifications evidently intended to beguile the unsuspecting into the belief that the man on the first floor landing would erect them a house with drains that never got out of order, or a hall planned to carry on the town affairs, and, if put to it, to make designs for the new church, fitted with the latest improvements. Besides the private office where James Meredith saw his clients and wrestled with the difficulties pertaining to awkward sites, there was the large drawing office across the landing. The windows, which were three in number, faced the north, and looked out upon Salisbury Circus. The prospect was pleasant. The circular plot of grass, bounded by iron railings and edged with a belt of plane trees, became in summertime alive with the song of birds and the music of the wind playing through the leaves; even in winter, when the trees were bare and the frost glistened on the branches, the office staff might have discovered—if they had not been so busy on dispute—the beauty of their outlook. It is true that the artistic one of the staff did occasionally call attention to the aspect, but as he unfortunately cultivated fits of depression and a limpness of attitude irritating to the others, his remarks were not always received with that respectful attention which he considered his due. His arrival in the morning was uncertain, but when the office door did swing back and his form appeared in the doorway, he was greeted with uproarious song, the words of it being more expressive perhaps than when the door yielded to the pressure of James Meredith's hand. Now, although the artistic one walked about between the two offices with an abstracted air, that not infrequently landed him in a friendly conversation with the safe in mistake for the Irish draughtsman, he was not disliked, his indulgence at times in fierce invective, and a rooted objection to work when a gloomy mood overtook him, were weaknesses regarded with some pity, and not a little amusement. The Irishman, who worked at one end of the room, opposite the door, was the nearest approach to a good-looking assistant that the office staff could boast, for while the business manager had a

good enough heart, his nose was ill-adapted for the face which it adorned; a mistaken nose thrown on as it were incidentally, a spiteful afterthought of Nature. Still, as the manager had a very serious dislike to being classed with architects, his nose assisted in this deception, which he practised upon his innocent friends and relations. A large check suit, patent boots, an indifferent air, and intermittent outbursts of wrath if anyone was unwise enough to connect him with the practice of Architecture—suggests the manager, or at least a part of him. He generally worked at the extreme end of the big board, which ran the whole length of the room. About the middle of the long board sat the Scotchman, who walked into the office in the early morning with a great-things-in-his-head expression on his face. Removing his coat and hat carefully, he would hover round and about in readiness, to seize the first opportunity of relieving his mind of several uninteresting matters; if anyone appeared responsive to his hungry look, his fate was sealed, the victim was approached and held captive with large black eyes, while a torrent of words poured out in a regular flow, that ceased only when attention was withdrawn. If the Irishman was working, the manager indifferent, and the artistic one wrapt in contemplation of the unseen, the Scotchman, who was nothing if not argumentative, made serious efforts to work the simple and large framed pupil into an attentive mood; a task by no means easy for the pupil, who without being altogether a cypher—at least in size—was disinclined for exercise of a mental nature, in fact, he was ornamental rather than useful, stood 6ft. 2in. in his socks, and dressed like a Mexican cow-boy. The office up to the time of his coming was fairly roomy, but at his entrance dwindled in size and became full. On those days when the master builder fled into the country in search of a job, the office staff would hold informal debate. The Irishman, with more energy than the subject seemed to call for, would declare that a door with stop-chamfered rails, and an architrave formed like an Oxford frame, was a good enough thing in its way, a statement the Scotchman would challenge calmly and philosophically. A door, he would say, so decorated is a soulless and feeble imitation of past workmen. This would be fiercely denied. To be strictly accurate, two minutes might possibly be allowed before the debate reached the abusive stage, after which the eyes of the Irishman flashed, and those of the Scotchman burned with a sombre glow, the atmosphere of the room vibrating with the sound of wordy combat, suddenly to cease on the entrance of a bland traveller, or the frequent visit of the wonderfully clever artist, with a discontented face expressive of a habitual desire to slay someone. Towards the close of the day, when argument languished, and the office took on a pensive air, you could catch the chortling notes of the pigeons without, and then the rattle of squares, the covering up of boards, and the general movements suggestive of departure. By quarter to six all had gone save the Irishman, who cleared out about half-an-hour later. The office, now wrapped in silence, would have been uninteresting to the casual observer. Next the door a safe, and in the further corners of the room shelves with directories and innumerable letter books thereon. But this was not all. Its previous occupants had unwittingly left behind some signs of their idiosyncracies. The board of the Irishman was littered with many drawings, three specifications, and to the left of where he had sat, pinned against the wall, were a number of little tracings to which in work hours he constantly referred without finding what he sought. The Scotchman's desk was cleared up neatly, and a T-square laid across the drawings in such a way as to suggest his never returning to work again,

an action on his part which was, perhaps, father to the thought. The business manager had been rather careless. On his board were the remains of a cigarette, the duster with which he had brightened his patent shoes, a broken looking-glass, with a forlorn pair of scissors lying near that had done duty as a razor previous to his exit.

G. L. L. M.

NEWCASTLE CATHEDRAL.

IT is Rufus who must be regarded as the founder of the present city of Newcastle. The burgesses of the infant town soon built a church, which they dedicated to St. Nicholas, the Bishop of Myra, and who "is so famous for his miracles and apparitions," so writes Bourne, "that he has merited the title of the patron saint of sailors." The church was destroyed by fire in 1216. The rebuilding took a long time, and the church, which is now the glory and pride of Newcastle, was not finished until 1350. The interior of St. Nicholas is imposing, the total length of nave and choir being about 245ft. The space between the tower and the transept is divided into three aisles, by firm, elegant, octagon pillars. Curiously, the centre division of the nave is narrower than either of the side aisles. The church may be briefly described as of the Decorated period, and is cruciform, there being no tower at the intersection. The steeple, of which more anon, is 100 years later, the original tower being square, with an embattled top. In the pages of local history one may trace St. Nicholas through the vicissitudes of time, law, and custom. In its early days it was, says the Daily Mail, filled with glittering shrines and richly decked altars, for the guilds of the merchant adventurers of Newcastle loved their church, and delighted to adorn it. In those days it saw many kings and queens, prelates and nobles, knights and dames, wealthy burghers and common people, alike kneeling before its altars. Then the scene changed,

"THE CARVED WORK WAS BROKEN DOWN,"

and the bare walls and benches re-echoed the thunder of Covenant and Puritan. Still one further change took place, for St. Nicholas' was "restored" according to the taste of the eighteenth century. When the "restorer" came the pulpit was torn down, the pews and the tombstones that were not claimed were sold by auction—no record of the moneys received are to be found, so that a noble opportunity occurred for anyone who wanted a few "ancestors by purchase"—and the nave was left desolate. This was in 1783. The authorities decided that it should be used for burial purposes only. The services were removed to the choir, the organ was turned round to face the east, the communion table was placed against the east wall, and a wooden screen, that will not bear describing, was erected between the dismal nave and the transmogrified choir. Between the years 1873 and 1877 extensive reconstruction was effected in the church, under the guidance of Sir William Scott, at a cost of £21,000. The church was restored to its original appearance, the congregation was again seated in the nave, and the choir re-stalled. The altar was brought forward from the east wall, and a beautiful reredos of Uttoxeter alabaster was erected across the chancel, the design being based on the

GREAT MEDIEVAL ALTAR PIECES

of Christchurch, Winchester, and St. Albans. The bishop's throne—St. Nicholas was made the seat of a bishop in 1882—is exceedingly handsome, and is crowned with lofty tabernacle-work of oak, ending in a crocketed spire 36ft. from the pavement. Eastward of the reredos the church has been excavated so as to disclose the original bases of the pillars, and this area has been fitted up with an altar with an effective triptych reredos. Upon the retables of both this and the high altar are crosses and candlesticks. In this chapel there is bracketed from the wall a small organ, the larger instrument being placed in the north transept.

NORTHAMPTONSHIRE.

By HERBERT NORMAN.

(Continued from page 228.)

HAVING thus taken the principal interesting buildings in the town, and continuing in the same direction, we pass over the South Bridge and out into the country, where we are soon again in interesting company, that of Delapré Abbey. It was here that the body of Queen Eleanor rested during the funereal march from Hardeby in Nottinghamshire to Westminster, and about a mile further on, standing at the side of the highway, we see one of the fine crosses erected by Edward I. to commemorate the places where the cortège stopped. Northamptonshire is lucky in having two out of the three remaining, the other at Gedding-ton does not compare with the one we are now looking at, which is octagonal in form and raised upon steps; with its surrounding background of beech trees it forms one of the most graceful and chaste pieces of Architecture in the county. The top of both crosses have paid the penalty supposed to be due to their form by the narrow-minded and truly destructive nature of Puritanism. Earls Barton forms the menu for our next day's jaunt, where the Anglo-Saxon sturdy old tower of the church stands looking down upon the incongruous surroundings of factories and slated cottages, for this village is fast developing into a town; but just across on the other side of Nene we find the typical English village of Castle Ashby, with the seat of the Marquis of Northampton; strange that two villages of such diversity of character should be such near neighbours. At the latter we gather at once the impression of wealth and consideration shown to the villagers by the wealthy. Take for instance the charmingly situated and well kept church, nestling among the trees of the castle grounds; no wonder it forms a favourite resort to Northamptonians. Where can we find, when £4709 11s. 4d. is required to restore the village church, a patron who will give, as a Marquis in this case has done, £3809 11s. 4d.? and where again do we find a rector that can design the chancel tiles for his church as we do here? Happy is the lot of the architect whose work is cast among such favourable surroundings; less should we hear of desecration, and not restoration, and churches in such condition might be more numerous.

A little to the right we find another of these old world villages, Whiston, where there is a fine example of Perpendicular work in the church; this, to the student of late Gothic, is well worthy of a visit.

I have just taken these three villages with their characteristic churches to give an idea of what may be found in almost every village of the county. Nothing can now be said of numerous others. The Roman work at Brixworth, the quaint old saddle-backed tower at Rothersthorpe; Fawsley, and Catesby, and their connections with the Gunpowder Plot; the picturesque seat of that grand old and hospitable antiquarian, Sir Henry Dryden, Canons Ashby; Peterborough Cathedral, of which much has been and still could be written; the Renaissance work at Kirby; Inigo Jones' work at Castle Ashby; the homes of the wealthy, Althorpe, Holdenby, and Rushton, with its curious triangular lodge; the smaller houses, as Sywell, and numerous stone farmhouses, down to the cottages with their mullioned windows and characteristic Northamptonshire chimneys—these, and others besides those mentioned at the commencement, must be left to be dealt with at some future time. Sufficient, however, has been said to convince all interested that Northamptonshire does possess Architectural beauties well worthy of a careful study, and to prove that, no matter to what style of architecture the student may be inclined, here he will find something worthy of his attention and consideration.

WIDENING OF LUDGATE HILL.

THE Improvements Committee of the London County Council has recently had before it an application from the Commission of Sewers renewing the application for a contribution towards the cost of the widening of Ludgate Hill between St. Martin's Court and Pilgrim Street. The widening of this portion of Ludgate Hill was being carried out by the Commissioners when the Council superseded the Metropolitan Board, and was at that time the only portion of the widened thoroughfare towards the cost of which the Board had not

ing to a little over £30,000. For each of the years 1880 to 1888 the amount was £30,000. The annual contribution of £30,000 was not given in a lump sum, but was appropriated thus: Every year the Commissioners submitted

A BATCH OF PROJECTED IMPROVEMENTS,

and such of them as were approved of by the Metropolitan Board subsequently ranked for contribution when they were completed. If in any year the moiety of the cost of the completed improvements exceeded £30,000, the sum paid was limited to £30,000, and if it fell short of £30,000, the actual moiety only



SKETCHED BY HERBERT NORMAN.

contributed. It appeared that, between the years 1876 and 1888 inclusive, it was the practice of the late Metropolitan Board to fix a limit to the amount of contributions to be made to the Commissioners of Sewers in respect of City improvements. In the year 1876 the amount which the Board was authorised to devote to local improvements was £120,000, and out of this the sum of £60,000 was appropriated to improvements in the City. In the year 1877, and all subsequent years up to and including 1888, the amount which the Board was authorised to apply to local improvements was £100,000 in each year, and the amounts which were fixed as a limit in respect of City improvements were, for each of the years 1877 and 1879, £50,000. In 1878 no limit was named, but contributions were voted amount-

was paid; but, as the City improvements cost greatly in excess of £60,000 per annum, the Commissioners had little difficulty in establishing a claim for the full amount of £30,000. After a consideration of these facts the Council, upon the recommendation of the Committee, decided: (a) "That all outstanding applications of the City Commissioners of Sewers for contributions be disposed of by the Council declining to contribute unless exceptional circumstances can be shown for any particular improvement having been carried out without the specific consent of the late Board, in which circumstance the improvement shall be considered on its merits. (b) "That all future contributions towards the cost of improvements in the City of London be upon the same footing, and be made in the



SYWELL HALL. SKETCHED BY HERBERT NORMAN.

same manner as contributions to improvements in other parts of the county." These decisions were communicated to the Commissioners, with the result that they asked for a reconsideration of the whole subject, mentioning particularly the widening of Ludgate Hill between St. Martin's Court and Pilgrim Street, and special reasons were adduced for that improvement having been undertaken without the specific consent of the Metropolitan Board. The Commissioners referred to the fact that the Board had contributed half the cost of each completed portion of the Ludgate Hill improvement, and that by so doing they had expressed their general approval of the widening of the thoroughfare. Moreover, it had been contended that it was most necessary to carry out the improvement the moment it had been decided upon, in order to avoid the granting of new leases, or the creation of new interests. The Commissioners also pointed out that the widening of Ludgate Hill was a county improvement, and they stated that they felt sure the Council would not deprive them of a contribution on account of the mere accident that at the time of carrying out the work the authority was transferred from the late Board to the Council. The width of the portion of the thoroughfare in question had been increased from 42ft. 6in. to 60ft., at a cost stated by the Commissioners to be £38,720. Having considered that application, the Committee brought up a report to the Council on May 16th, 1893, in which it stated that, whilst it admitted the importance of the work, it felt precluded from advising the Council to contribute towards the cost, having regard to the Council's resolution of November 26th, 1889. Its report was adopted by the Council, and the Council's decision not to contribute was accordingly communicated to the Commissioners. The Council, on October 15th, 1895, however, agreed to contribute half the net cost of widening Ludgate Hill at Nos. 1, 3, 5, 7 and 9, and at No. 1,

St. Paul's Churchyard, the estimated net cost of that work having been £89,920. The Commissioners, before commencing that improvement, complied with the rules of the Council governing applications for contributions towards the cost of improvements; that was to say, before undertaking the work they submitted the proposal to the Council for approval, and forwarded proper plans and estimates of the cost. Having reviewed all the facts, it now appeared to the Committee that there was some force in the arguments adduced by the Commissioners, and they thought that in this particular improvement (St. Martin's Court to Pilgrim Street) there were special circumstances which might justify the Council in acceding to the request for a contribution. There was little doubt that if the Commissioners had delayed taking action the improvement would have cost far more than it had done; in fact, it was possible that, had it not been undertaken when it was, that portion of Ludgate Hill might have remained narrow and unsightly to the present day. Moreover, the Metropolitan Board, having contributed towards the cost of the widening of the other portions of the thoroughfare, thereby clearly expressed its general approval of the improvement. The widening of Ludgate Hill had been necessitated not by local but by general through traffic going to and from all parts of the county. It was of opinion that the necessity and importance of the improvement, and the fact that it was one in which the inhabitants of London were interested, justified the Council, should it feel so disposed, to accede to the application for a contribution. There was one remaining point to which the Committee must call attention. It had already stated that, upon a former occasion when it reported upon the subject, the cost of the improvement was given by the Commissioners as £38,720. In the Commissioners last letter, however, asking for a reconsideration of the

subject, the cost was put at £67,230 13s. In recommending a contribution of half the net cost, therefore, the Committee had decided to advise that the contribution should be based upon the smaller amount, and "that the estimate of £19,360 to be submitted by the Finance Committee be approved, and that the Council do contribute on the usual conditions one-half of the net cost of the widening of Ludgate Hill, between St. Martin's Court and Pilgrim Street, as shown upon the plan submitted by the City Commissioners of Sewers, such contribution not to exceed the sum of £19,360."

Dr. Collins presided over the last weekly meeting of the London County Council.—Lord Welby (Chairman of the Finance Committee) asked the permission of the Council to withdraw the report dealing with the Works Department. His reason was that reports from the officers had raised the question that the schedule prices might be too high, and the sub-committee was consulting the General Purposes Committee on the matter.—The Earl of Hardwicke asked if it was not a fact that the reason of the withdrawal of the report was that the schedule value was $4\frac{1}{2}$ per cent. higher in the Works Department than it was for contractors.—Lord Welby asked if that was not raising a discussion on the report, which he had not moved.—The chairman said it was usual, when a committee wished to withdraw a report, for the Council to accede to the request, and under those circumstances discussion would not be in order.

THE Romans generally got the credit of having the most perfect water supplies of the Ancients, but recent excavations in Greece show that the Greeks, by employing underground conduits, were in advance of the Roman aqueducts, which, however, being more "in evidence," probably acquired more notoriety.

THEATRE ALTERATIONS AT SHEFFIELD.

THE City Theatre at Sheffield, recently transformed into the handsomely appointed Lyceum, ranks with any similar building in the county. It is not many years since the old wooden building, known as Stacey's Circus, was destroyed by fire, yet it is singular to note how rapid has been the progress of theatrical enterprise since that time. The city deserves this attention. No public has been more generous than the people of Sheffield in supporting theatrical entertainments, and those who are responsible for this class of diversion have seen clearly that it is necessary to keep pace with the movement of the great cities among which Sheffield is taking her place. The building of the Empire Palace has had its effect in exhibiting the class of surroundings it is possible to obtain at the ordinary prices. There were great hopes of the old City Theatre in its earliest days, but it stopped short of the realisation, and it was left for the syndicate who took over the concern to justify their reputation by a thorough and unsparing expenditure. Regarded both from an exterior and an interior point of view, the change has been entire, so much so that very little of the familiar phases of the old building remain. The elevation is now bold and striking, and of classic design. To carry out the plans of the architect, Mr. W. G. R. Sprague, it was necessary to abolish the shops, which lent

NO SENSE OF IMPORTANCE.

to the structure. Everything has been utilised to secure the public convenience, and that on the best scale possible. The circular tower, some 70ft. high, surmounted as it is by a copper dome and a flying figure some 12ft. high—which is to carry an arc lamp of 500 candle power—is really the central idea of the change, affording a commodious and luxurious entrance in place of one which used to be somewhat meagre and bare. Surrounding this point is a handsome iron and glass shelter, which heightens the decorative effect, studied also in the lighting of the several doors which open to the vestibule. The stained glass in the doors, and the brass electrolier overhead, are in keeping with the artistic detail in the charmingly painted ceiling of the foyer, and the fibrous plaster work which supports it. The tower is at the corner, and the frontages in Arundel Street and Tudor Street are relieved with groups of flowers and foliage; the whole, in its stucco covering, relieved with terracotta, presenting a very handsome appearance. Entering, the visitor will proceed by the grand staircase, the front of which is of marble, to the dress circle, the upper circle being reached

by a companion staircase on the right, and the stalls by a passage on the left, past the booking offices. The interior presents an ornate appearance, heavy gildings, bold carvings, and delicately-coloured emblematic figures embellishing the points which meet the eye in a sweeping glance which takes in the entire picture. The roof is loftier, the proscenium front higher, and the impression, while conveying the idea of space, is not that of magnificence only, but of solid comfort and luxuriance. The work on the dome was entrusted to Messrs. De Jong and Company,



of London. The figures done in delicate tints are dreamy and harmonious representations of the fine Arts on a pale sky-blue ground, the surrounding gildings heightened the effect in a highly artistic style. Four cameo paintings fill the corner panels, and into the panel over the proscenium Cupids are gracefully introduced. The scheme of decoration is throughout of the beautiful style of Louis Quatorze. Gilt and cream mark its essential features inside; from roof to ceiling these prevail. Over the boxes on the circle tier the panels are appropriately and tastefully filled in, and the niches on either side of the stage are occupied by statues of music and the drama. The private boxes rise tier by tier to the top of the house, so that there is no break in the architectural plan. They lend an air of solidarity to the decoration, and their drapings and hanging portieres make them

inviting and luxuriant. The balcony front of fibrous plaster-work is beautifully moulded, the designs harmonising throughout with the dress circle front, and the electric lamps in ornamental brass are additionally attractive. Light is shed on all this magnificence from eighty pretty electroliers about the dome, in the centre of which is a sunlight, where gas is fixed for emergency. From every point of the house there is an uninterrupted view of every part of the stage. The line of sight is throughout—even at the back of the gallery—perfect. A special feature has been made of the orchestra stalls. They occupy nearly all the space between the circle balcony and the orchestra. Access is obtained to either side of the grand circle by a lobby, which passes underneath the upper circle, the walls of which, as in all the staircases, are covered with Japanese paper.

THE VENTILATION OF THE BUILDING

and its sanitation are from the newest and most approved designs. Hydrants are liberally placed, and there are numerous safety-doors, with extra exits, from almost every quarter. As an additional safeguard, in the building iron and steel girders, concrete and brick, have been entirely used, so that the auditorium is practically fireproof. A fireproof curtain of steel cuts the stage off from the front of the house, and the electric light has been installed behind the stage, as before it. The contractors engaged in the work are: Messrs. Longden and Sons, contractors, Sheffield; Messrs. De Jong and Co., decorators, London; Messrs. Merryweather, hydrants and fire appliances, London; Messrs. Strode and Co., gas and hot water heating, London; Sheffield Electric Light Company, electric lighting contractors; Messrs. Owen, Luck, and Pike, consulting electricians; Messrs. Cranston and Elliott, furnishing and seating, Edinburgh; Messrs. Walker and Sons, bar fittings, London; Mr. Hy. De Grelle Hondoet, parquet and mosaic work, London; Messrs. Moreland and Sons, constructional iron work; Messrs. Corrie and Sons, sanitary and plumbing work; Mr. F. H. Marchant, of Exchange Street, Sheffield; for brass handrails.

A HANDSOME church for the use of seagoing men of the port of London is to be built, on the designs of Sir Arthur Blomfield and Sons, alongside the Missions to Seamen Institute in Poplar, with a covered way between.

The opening of the new schoolroom at Ellesmere College marks a great step towards the completion of the buildings. The school was opened in 1884, and now accommodates 200 boarders. The cost of the latest addition has been £5000.



SKETCHED BY HERBERT NORMAN.

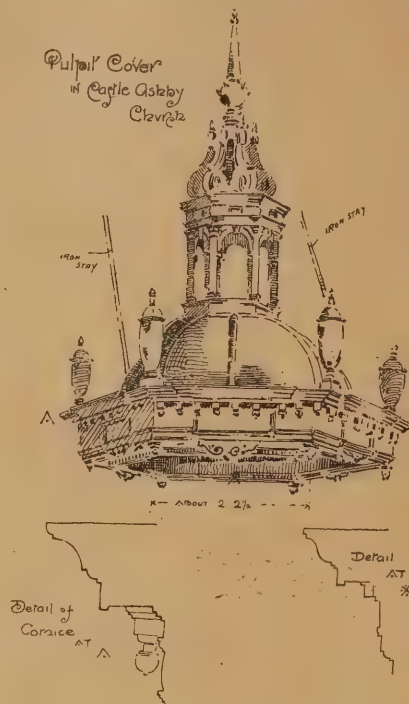
RESTORATION OF A TYNESIDE CHURCH.

THE finishing touches are now being given to the external additions and internal improvements and decorations in connection with the ancient parish church of Newburn. The work of the restoration and renovation of the old church has been pushed forward all through the summer months, the services of the best known experts in the various branches of ecclesiastical Art having been secured. A new porch has been built to the south entrance with massive walls of undressed stone, to correspond with the walls and buttresses of the ancient building, the tower of which is pure Norman, and is known to have been scathed by fire and girt about by the serried ranks of the invader some six centuries before the guns of General Leslie belched forth destruction from its summit on the Royalist troops entrenched on the haughs between Ryton and the Tyne. Immediately over the entrance portico to the new porch is a deep recess, with pointed arch with cut stone tracery of exquisite design, and shields of polished stone on the right and left. The floor of the interior is laid with permanent herring-bone tiles, relieved by a bright border, whilst on the right and on the left seats of massive oak extend the entire length of the porch. The seats have been introduced with a view of perpetuating the old custom of country people resting in the porch after a long walk before entering the sacred edifice. A new vestry has been added, and extensive alterations made to

THE WEST WING OF THE BUILDING.

The new reredos is in the form of a triptych with folding doors, beautifully gilt, the framing of solid oak being shown in bold relief. The columns are of Caen stone, and the contrast is very fine. The pictures introduced in the panelling are numerous and select, the object of the designer being to typify and illustrate the mission of angels in heaven and on earth, and the artist has carried the idea into effect with a master hand, the church having been dedicated to St. Michael and All Angels. In addition to the pictures in the panels, there are three tiers of sculptured figures which give the finishing touches to a notable work of Art, the mission of the angels being again brought into prominence. The marble pavement at the chancel screen, which is alike worthy of the reverend associations of the building and the scholarly taste of the architect, has brought to light the singular fact that the chancel is not straight, being what is known in ecclesiastical Art as a "weeping chancel," a custom followed in connection with the majority of the cruciform Churches built in the Middle Ages. Immediately over the chancel screen is a picture, the colouring of which is strikingly brought out, Christ is represented as standing over the "wells of

salvation." On the left of the central figure a number of female saints are artistically grouped. On the right side of the picture the same local colouring is studiously kept in view by the artist, very realistic portraits of St. Aidan and St. Cuthbert, both of whom had a large share in the Christianising of ancient Northumbria, being grouped in the foreground, together with St. Oswald, who planted the cross near Hexham and fought for the faith, while St. Benedict represents the monastic orders, and St. Jerome, one of the four doctors of the West, represents Latin Christianity, St. Athanasius being the repre-



sentative of Eastern Christianity. Like the majority of churches which in early times were dedicated to St. Michael and All Angels, the church at Newburn stands on a hill, from which the view in the summer and autumn months is

SINGULARLY BEAUTIFUL AND PICTURESQUE

—so much so, indeed, that it is said that the artist who painted the "Plains of Heaven" obtained his ideal from the lovely scenery viewed from the eminence on which the church of Newburn stands, just as Lough, the celebrated sculptor of that name, conceived his ideal of Milo from the towering rocks at the Sneep, a wooded ravine at a bend of the river Derwent. The buttresses of the church

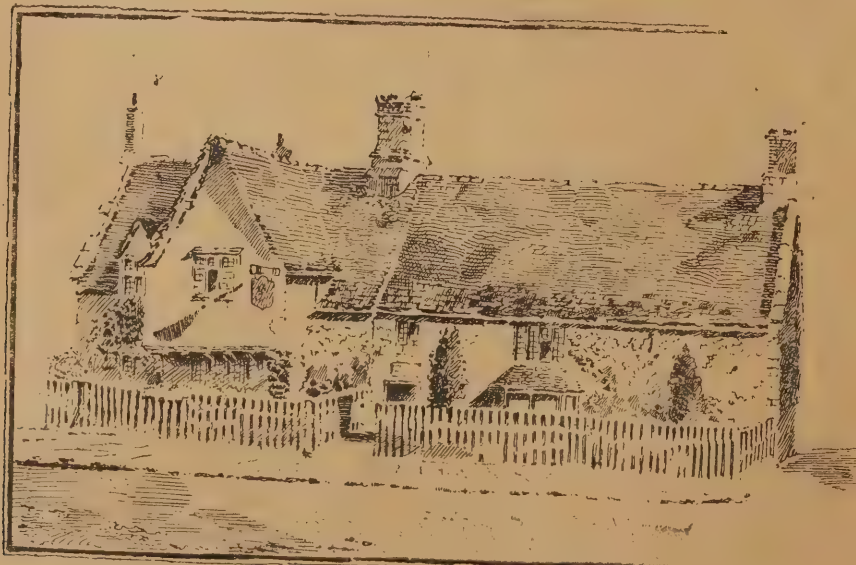
are regarded as being exceptionally rare, but still more peculiar is the curious circumstance that in the interior of the building the north arcade is a fine illustration of the Early English style of Architecture, while the south series of arches are as distinctly Norman. There is no data to show how the strange transformation came about. Another link, characteristic of early times, is the preservation of an ancient Easter sepulchre in an arched recess on the north side of the altar. The carved woodwork in the interior, which is delicate and artistic, was executed by Mr. Ralph Hedley, Newcastle; the marble by Messrs. Beall, of the same city; and the carved stone figures by Messrs. Milburn, of York; the marble floors by Messrs. Emley, Newcastle; and the paintings by Messrs. Bacon Bros., of London; while the whole of the artistic work has been supervised and directed by Messrs. Hicks and Charlewood, Newcastle.

WESTMORLAND ANTIQUARIANS.

THE Westmorland and Cumberland Antiquarian Society at its second meeting of the year, at Penrith, some days ago, visited Edenhall Church, the principal features of which were explained by the Rev. W. Lovejoy, vicar; Glassonby, where a halt was made at the residence of Mr. W. E. Rowley, to inspect some carved wood-work; to Old Parks, where the articles dug up a few years ago from the great tumulus were exhibited by Mr. W. Potter; Kirkoswald Castle; Kirkoswald Church, where Canon Thornley explained the various points of interest; and the tower on the hill. A meeting was subsequently held at Penrith, at which several papers on the work of the Society were read. Mr. F. Haverfield, F.S.A., stated that the excavations carried out under the auspices of the Society during the past two months have been chiefly connected with the neighbourhood of Birdoswald and Gilsland. At Birdoswald we trenched various spots on the east side of the fort to discover the course pursued by the Vallum, and to find out if the turf wall, traced on the west side of the fort in 1895 and 1896, existed also on the east side. The results were most satisfactory, the Vallum had been discovered in 1896 to diverge from its straight line as it approached the west side of the fort and to pass in a rather irregular course along its south face. This year we ascertained that it returned on the east side of the fort to its normal position near the wall and parallel to it. That is to say, we completed the proof that the Vallum at Birdoswald diverged from its course to avoid the area occupied by the fort. I may say in passing that some excavations carried out by myself in conjunction with Mr. C. B. Bates at Carrawburg in Northumberland also confirmed the result obtained there in 1896—that the Vallum either stops or turns aside to avoid the fort. (2) The turf wall was found in 1894-5 to run from Wallbower due east close up to the west wall of the fort, and indeed in such a course that it would have come close to the N.W. gateway, now no longer existing. In the present year we ascertained that it existed once on the eastern side of the fort, and not only that; our trenches seemed to show that it ran right across the area now occupied by the fort. In other words,

THE TURF WALL AT BIRDOSWALD

represents what we have nowhere else along the whole line of Hadrian's Wall, a line of frontier earlier than the existing stone wall and forts. At present it is a line only two miles long, and I regret to say that all endeavours to find traces elsewhere have so far failed. But it is certainly a very remarkable fact that we should find even two miles of this earlier line, and Cumberland may be congratulated on the possession of this unique relic. At Gilsland our endeavours were limited chiefly to tracing the course of the Vallum near the Poltroosburn. It appears to us, and our trenches confirmed the ideas, that the Vallum crossed the burn at the point where there is a dip in the bank on each side, and some curious retaining walls of rough but not



"THE SUN" AT WELLINGBOROUGH, NORTHANTS.

Early Saxon
Church

wholly irregular masonry, excavated by the Society in 1886 at the date of the then pilgrimage. It has been sometimes supposed that this masonry represented the retaining walls on each side of the mural road, here taken across the Poltross. Our excavations, however, showed that this was hardly the case; the retaining walls represent rather the ends of the mounds of the Vallum, banked up, thus to prevent their slipping down the steep bank into the Poltross. I may add that we could find no trace of the mural road at the Poltross. Evidences of it, close behind the wall, were found during some draining operations last spring in a field close to the vicarage, but it was not discoverable on the east of the burn, and some search made, by the permission of Mr. John Crowe, of Chapelhouse, was equally fruitless. For the next year, 1898, it is proposed to finish up certain details at Birdoswald and Gilsland. It should also be possible to ascertain the course of the Vallum near Castlesteads, the one point east of Carlisle where the line of the earthwork is seriously obscure; to test the "camp" at Hawkhurst, near Brampton, and its vicinity; and last, but certainly not least, to attack the problems connected with the wall west of Carlisle—for instance, its course near Burgh Marsh. It may be permitted to add two remarks made by competent archaeologists, who chanced to visit our trenches. One was that the discoveries made this year and last with respect to the Vallum and turf wall are the most important made along the wall for years. The other was—and it came from a Scotchman, as well as from an excavator of experience—that the cost in money of obtaining these results was extraordinarily small.

EXCAVATIONS AT FURNESS ABBEY.

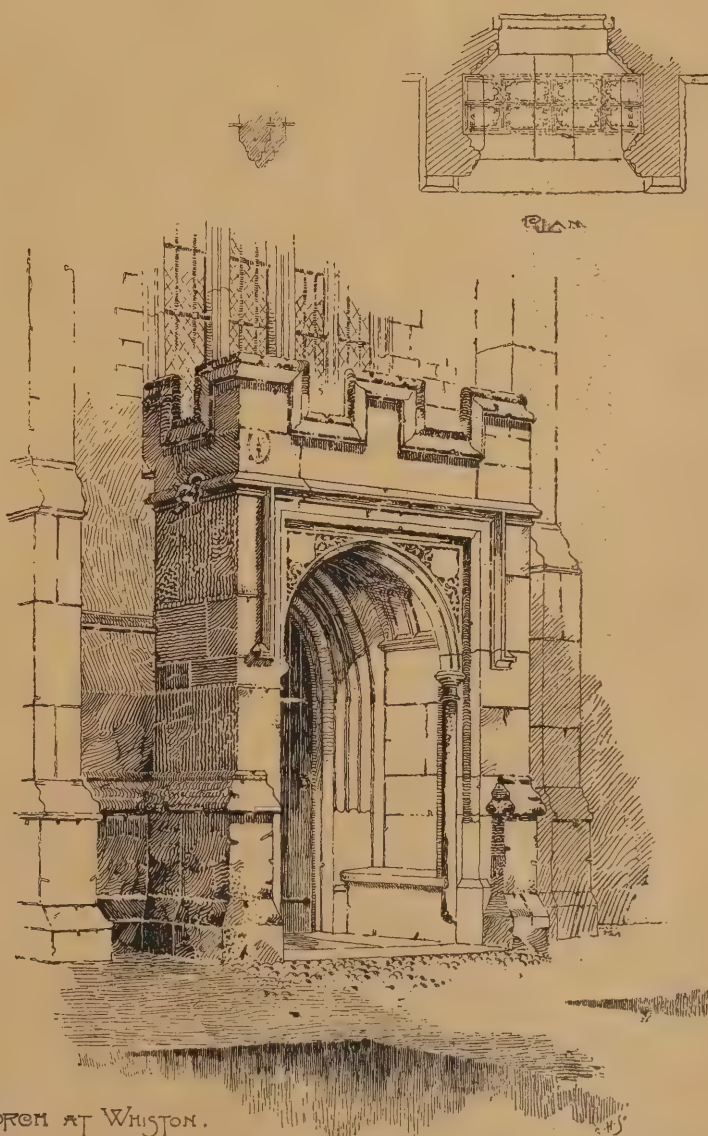
In the evening, a report prepared by the President (Chancellor Ferguson) upon the work done at Furness Abbey during the month, was submitted. In this the Chancellor stated that the foundations of the buildings round the cloister garth have been uncovered and carefully planned and measured. One thing had been made apparent—that the refectory or frater had been pulled down, and two new ones erected side by side. This was done to evade the statute, which directed that Cistercians were not to eat meat in the frater. So they built two. In one, the "lean frater," they had no meat; but on three days in the week they dined in the "fat frater," and on meat. It had also been discovered that the Cistercians rebuilt the church at an early date.—The Rev. J. Whiteside, Vicar of Shap, submitted a paper on "Kirkbride Church." Mr. Whiteside said the Romans had previously a camp on the eminence where the church is built. There were traces of the moat or fosse, the Roman road went close by, and the stones

of the church, being such as would be used in their wall, may possibly have come from Bowness, if they did not form the walls of the local fort. In the chancel wall was discovered the fragment of a Roman jug. Though the fabric was not erected to serve the purpose of a fortress, it cannot be doubted that the parishioners sometimes fled to it for safety. It was a convenient point from which to watch the movements of the moss-trooper, and seek security against his rude alarms. When a partial restoration of the church took place twenty-five years ago, the floor of the nave was removed, and some seventy skeletons were found. All were males, and had been buried close to the surface without coffins, higgledy-piggledy; probably as they were brought in from battle. There were no such interments in the chancel. The fabric in 1894 wore an aspect of uncared-for slovenliness. The chancel was in a thoroughly dilapidated condition, the east wall hanging forward more than a foot beyond the perpendicular, with gaping fissures on the north and south sides, with rotten floor and damp atmosphere and fusty smells. The rectory pew was a trap through which the unwary worshipper dropped and barked his shins, and newts from the soil below made their appearance during Divine service. The work of restoration was commenced in August, 1895, and finished in December. A description of the principal works of restoration, of the monuments in the church, was included in this interesting paper;

as well as some notice of several Kirkbride men who fought at Waterloo.—"Heraldic Glass in Edenhall Church" was the subject of a paper by Dr. Haswell, Penrith. It had been stated by Machell that there was a quantity of stained glass in the windows of Edenhall, with the arms of Musgrave and their quarterings. He (Dr. Haswell) thought it probable that when the present hall was built, in 1820, this glass was removed to the church. The four pieces of glass in the side chancel windows were all of the same design, which was about 1650 to 1700. The right-hand light in the north window contained the arms of Musgrave, impaling Stapleton, with the inscription below: "Richard Musgrave, Kt., married Johan, daughter of one of the heirs of William Stapleton." Was this a mistake, or had the pedigree been wrongly recorded by Dugdale? Dr. Haswell thought the glass made it open to doubt whether it was Thomas Musgrave or his brother Richard who founded the fortunes of the Edenhall family. Other glass in the church was described in detail.

THE east end of the ancient parish church of Chislehurst has been extended several feet, with much ornamentation.

On Saturday week the Earl of Crewe opened a technical institute and also an isolation hospital at Crewe, both of which buildings have been erected under the direction of the municipality.



TOMB AT WHISTON.

SKETCHED BY HERBERT NORMAN.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
October 27th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ARCHITECTS are scoffing at the parsimony displayed by the Wells authorities in offering a paltry prize of £25 for a design for the town hall, more especially as particulars of the competition cannot be obtained unless a deposit of three guineas is made. The Wells authorities evidently do not place the work of the architect at a very high value.

LONDON is again "up"; successively in Parliament Street, in Piccadilly, and in the Strand, three of the great City's principal arteries. The "continued in our next" improvements of Piccadilly causes something like a panic amongst shopkeepers who have not forgotten the anarchy that existed here just a year ago. In various other parts of the Metropolis the pavior holds high revel. Autumn seemingly is his carnival time.

THE Poet Laureate, in his speech at the opening of the School of Science and Art at Ashford, made some practical remarks, well worthy of attention, about the manner in which students of Art should apply the knowledge which such schools exist to supply. He judiciously warned the youthful enthusiast against giving way to the too common desire to become an artist in merely the popular acceptance of the word, and against the adoption of a career in which prizes are within the reach of only a few men of exceptional talent or extraordinary business capacity. What, he argued, with undeniable logic, was that there is no loss of dignity on the part of the artist in devoting himself to craftsmanship, and that as a decorator or designer he has opportunities of being successful in many ways which are not open to the simple painter of pictures. All this is perfectly true, and claims the consideration of everyone who is ambitious to follow the artistic calling. The ranks of the painters are already overcrowded, but for the really artistic craftsman there is a demand that, so far, cannot by any means be adequately satisfied; a position of affairs which should be significant enough to every young artist and student.

THE restoration of Stratford-on-Avon church, wherein lie the remains of Shakespeare, was commenced eight years ago. The sum of £6000 was then raised by subscription, chiefly in the neighbourhood, and expended principally in the repair of the outside of the fabric and the interior of the chancel. Very little was done to the interior of the nave and transepts, and it is now desired to complete the original design by restoring them. The work is being done under the advice of Mr. G. F. Bodley, A.R.A., under whose supervision the previous part of the restoration was carried out. Three things are aimed at—(1) the rearrangement of the organ; (2) the relaying of the floor of the nave, the cleansing of its walls and pillars, and the substitution of open oak benches for the present pews; also the readjustment and enlargement of the heating apparatus, and the introduction of the electric light; (3) the rebuilding, on a

revised plan, of the old vestry, taken down about 100 years ago on account of its dilapidated condition. It is expected that the sum of £5000 will be required.

MR. F. C. PENESE had held the position of Surveyor to St. Paul's Cathedral for forty-five years previous to his recent resignation. It will not be easy to identify the post with another personality. It may be said of him that he was almost as familiar with the architectural aspect of ancient Athens as he was with the structure so long committed to his care. His work on the Parthenon is acknowledged in all countries to be the highest authority on the subject. His knowledge of the style of the Italian Renaissance peculiarly fitted him for the task of conserving Wren's masterpiece, whilst, like Wren, he possesses high mathematical attainments.

THE French Art press is filled with admiration at the freedom with which English living architects are allowed to be criticised by their own countrymen. It lauds the way in which the public is called upon to condemn any projected vandalism, such as of the syndicate which proposes to cover historic sites in Cornwall with monstrous hotels. The French law is apparently more rigorous, and would consider this to be defamation of character.

WHEN the next General Assembly is convened at Burlington House, two vacancies have to be filled up in the ranks of the Academicians. They are caused by Mr. Horsley's resignation and by Sir John Gilbert's death. Except Mr. Leader, there is no one outside the Forty whose claim looms large in the public appreciation, and Mr. Leader has so often been a proxime accessit that his inclusion this time should be safe. Another Associate much in the running is Mr. Gregory. His name is generally to be found in past catalogues amongst the members who "do not exhibit this year." But his "Boulter's Lock" in the last exhibition has brought him into notice at a critical time. The constant preponderance of the figure painter in the list of the R.A.'s is due, not to any slighting of landscape or seascape, but to the fact that the services of the figure painter are needed for the schools. For this very reason the other branches should be adequately represented amongst the Associates.

As the first of its winter exhibitions the Fine Art Society is showing, in the larger of its two galleries, a selection of original designs for "The Pilgrim's Progress," made for engraving on wood by three brothers, George Wooliscroft Rhead, R.E., Frederick A. Rhead, and Louis Rhead. The vast poetical imagery, the naiveté and sense of absolute conviction which keep Bunyan's allegory fresh in the minds of all Englishmen, have on many previous occasions tempted ambitious draughtsmen—both those of realistic as well as those of idealistic leanings. Yet neither on those occasions, nor indeed now, can full justice be said to have been done to Bunyan's poetical symbolisms. The Messrs. Rhead, and chief among them Mr. G. Wooliscroft Rhead, to whom have been allotted the most significant and the most popular subjects, must be credited with earnest endeavour, with the aspiration towards the imaginative and the ideal rather than with its attainment. For all the rugged strength affected in these big, black-and-white designs, there is apparent in them a certain emptiness, a certain superficiality, which is the cause that he who takes his Bunyan very much *au sérieux* must retire from the contemplation of them still hungry for more solid food, for matter of graver import. A powerful design of its kind is the "Moses breaking the Tables over the head of Faithful," in which the pitfall provided by the mixture of the sublime and the grotesque in the motive itself has been cleverly avoided. Imposing from the spectacular and decorative point of view is "Christian entering the Valley of the Shadow of Death." As more noticeable than their fellows may be mentioned, too, "The Giant Despair," "The Flatterers, the Shining One with the Whip,"

and "The Arming of Christian." Mr. Louis Rhead, notwithstanding the peculiar and deliberate mannerism of his method, shows more vitality in some minor episodes of the semi-sacred prose poem than his brother collaborators. By a certain old-world quaintness he places the Pilgrim's Progress in its own period, and affords a certain contrast and relief to its more apocalyptic episodes. Some of the borders give evidence of inventiveness of design.

IT is just seven years since the Charity Commissioners' scheme for the reconstruction of Christ's Hospital became law. But so long ago as 1877 a special commission had reported that, although unwilling to interfere with the ancient traditions and venerable memories of "this religious, Royal, and ancient foundation," removal from London was indispensable, and it was therefore decided to build near Horsham. Mr. Aston Webb and Mr. Ingress Bell were chosen as the architects out of a list of applicants numbering 131. The foundations have now been brought up to the ground line, and it is therefore possible to some extent to judge of the general effect. Briefly, the design is a complicated application of the "block" system to a group of schools—that is to say, the plan has wisely sought to dispense with ornament when usefulness and comfort became imperilled. The great hall stands in the centre. Behind the hall is a quadrangle, on the left of which is the chapel, which looks to have a few kindly reminiscences of the old hall in Newgate-street, but "oriented" north and south so as to present its long side to the quadrangle. The residential parts are evidently conceived with great attention to air and space. They comprise fourteen houses, to contain each fifty boys. The head master's house and six other masters' houses are admirably placed. The dining-hall will ultimately be capable of seating 820 boys. Communication throughout the "block" is by covered way for the masters and boys, and by subway for servants. Opposite the chapel is the library and museum. The medical officer's house and the infirmary are entirely apart from the other buildings, but quite as easy of access. The tout ensemble will not by any means be impressive, but from a distant elevation they will probably be considered imposing.

A REPORT, the recommendation of which was agreed to, was brought up at last week's meeting of the L.C.C. by the Building Acts Committee as follows: "A very important point has recently arisen with regard to proceedings in dangerous structure cases, one of the magistrates having held that the Council has no power to serve summonses by affixing them on the premises, which course has hitherto been taken in cases where the owner was not known, but that in each case the Council must discover the owner and serve the summons upon him personally, or leave it at his place of abode. The magistrate therefore declined to proceed with certain summonses which had been served by affixing to the premises. Section 188 (2) of the London Building Act provides that any notice, order, or any document to be served under the Act shall be deemed to be sufficiently served, in default of other means of service, if a copy thereof be fixed on some conspicuous part of the building to which it relates; but the magistrate's reading appears to entirely ignore the power to serve a notice or other document in this manner. The point is one which would affect many cases during the course of each year, and we think that it is exceedingly desirable than an authoritative decision upon it should be obtained. We accordingly recommend that the solicitor do apply to the High Court for a mandamus upon the magistrate to hear the summonses with which he has declined to proceed, on the ground that they were served by fixing a copy of each to the premises to which they respectively related, and were not served upon the owner in each case personally, or left at his place of abode."

ATTENTION has been called more than once during the past few months to the condition of St. Mary's Coslany, Norwich. A corre-

spondent has described the fabric as "fast falling into a deplorable state of decay," adding that he was at once "grieved and disgusted" at what he saw there. All the windows are out, and the roof is far from being weather-tight. But there is very little rubbish on the floors, and the building may be comprehensively described as looking "poor but clean." St. Mary's is described as "a fine cruciform Perpendicular church, with a tall round tower of flint, containing six bells. There are no aisles. The oldest portion of the church is the round tower and west wall, which are of the thirteenth century. Upon the west wall is the oldest mural inscription in the city. It is in Norman French, in Lombardic character." There is a curious old brass in memory of "Mistresse Ane Claxton," which reads something like this:—

Mis. Ane Claxton Here Interd Doeth Lye
Whose Vertvows Lyfe a Livinge Prayes Did
Mirit
Hir Faithe Religion Grace And charritye
Hath Crownde Hir Sowle with what te Saynts
Inherit
Foil Fowetskore Yeares She Lived Exempte
From Blame
Preserving Safe Hir Repvtations Name
From Worships Race She Did At First Desend
And Claxton's Name Did Weil That Wort
Adorne
By Whome Whilst Heaven Vnto Hir Lyfe Did
Sende
Nine Sones Five Daughters To This Worlde
Wear Borne
The First of Avgst One Thowsande Six
Hvndred and Five
She Dyed Let Still Hir Vertves Prayes Sirvive.

There were evidently a large number of brasses here at one time, but most of them have disappeared. To make the building weather-tight would involve an expenditure of at least £400, and to thoroughly restore the church and to put in stone mullions where there is at present only plaster work, in fact to restore the church to the state in which it was originally, would cost from £800 to £1000.

THE engineer to the London County Council has informed the Highways Committee of that body that there are some cracks in the Queen Victoria Street subway near the Mansion House, and also at the Blackfriars end, caused apparently by the execution of works at a lower level, but he states that it is as yet impossible to fix with any degree of certainty to what extent the subway may be affected. The Committee, recognising the fact that there are in the subway both water and gas mains, has informed the companies owning them of the circumstance, and that special facilities would be afforded them for the protection of their mains. It has been thought necessary, in order to insure swift detection of any danger of the mains being interfered with by any further subsidence, to have them kept constantly under observation, and for this purpose to employ watchmen both by day and night.

At the meeting of the City Commission of Sewers last week a motion was submitted instructing the Improvements Committee to consider a scheme for rebuilding the Finsbury Circus section of London Wall. The same Committee submitted the arrangements entered into for widening the western end of Cheapside at a cost of £69,000, for the purchase of ground leases only. The Streets Committee recommends that permission be given to the Central London Railway to construct a staircase at the corner of Queen Victoria Street and Poultry.

A CORRESPONDENT writes: "The building adjoining St. Martin's Town Hall at the corner of St. Martin's Lane, formerly the offices of the National Provident Institution, and now in the occupation of the Technical Education Board, is probably not of sufficient antiquity to warrant the interference of the Society for the Protection of Ancient Buildings, but is of sufficient interest to merit a word for its preservation. The building, which is faced with Portland stone, was

erected some thirty years ago, and the front had acquired an agreeable and harmonious tone. The Technical Education Board, apparently dissatisfied with the appearance of the front, has had the stonework of the ground floor cleaned, with disastrous effect, making the building look like a public-house or a music-hall. The Technical Education Board has two advisers on artistic matters, and it would be interesting to know whether Mr. Frampton or Mr. Lechaby have been consulted with regard to this work. The flaying of our London buildings is a serious matter, and it is high time that public attention should be called to the practice."

A NUMBER of Roman antiquities were found last week between two spurs of the Pyrenées at Martres Tolosane on the Garonne. They were brought to light in the digging of foundations. There are in all seventeen statues, and a lovely bust of a woman, and numerous hands and feet—in short, quite a museum. Among the seventeen marbles are a Mars, a Minerva of severe countenance—for the Roman conception of divine wisdom was sterner than the Greek—and an Adonis with long hair. A hundred years ago some other Roman works of Art were ploughed up half-a-mile away. In 1826 there was a sudden land-sinking in a garden at Martres Tolosane. It was caused by the falling in of a vault where a number of antique marbles were evidently stored—perhaps the studio of a sculptor of the Gallo-Roman time.

THE accompanying illustration represents a banner shown by Messrs. Jonathan Harris and Sons, Limited, of Cockermouth, at the recent Ecclesiastical Art Exhibition at Nottingham.



There is a soft delicacy and fine artistic touch in the design which is scarcely fully expressed in our illustration.

At a meeting of the Art Gallery Committee of the Bury Town Council, held to receive the report of the assessor (Mr. R. Knill Freeman, F.R.I.B.A.) in the Art Galleries Competition, it was reported that twenty-two sets of plans had been sent in, consisting of 109 separate drawings. Favourable reports were made of seven, viz.:—Motto: Mezzotint, submitted by Messrs. Woodhouse and Willoughby, Manchester; octagon: Messrs. Cheers and Smith, Blackburn; plan: Mr. John Johnson, London; diadem: Messrs. Gibson and Russell, London; star in a circle: Mr. F. J. Parkinson, Blackburn; simnel: Messrs. Maxwell and Tuke, Manchester; ballon d'essai: Messrs. J. D. and S. J. Mould, Bury and Manchester. It was recommended that the three premiums be awarded as follows:—1 mezzotint, 2 octagon, 3 plan, and decided that the Art Gallery Committee

meet at a later date to decide which of the pre-miated designs be recommended to the Council for adoption. The amounts of the premiums are £75, £50, and £25.

THE Norwich magistrates have made an order authorising the City Engineer to pull down such portions of the boundary and other walls of St. Swithin's Church as, in his opinion, will make them safe to passers-by. Bad as the exterior is, and it is very bad indeed, the interior is, if possible, still worse. Wet is to be seen everywhere, and the daylight peeps freely through the chancel roof. The east window was a comparatively modern one, and once contained two small portions of ancient stained glass, bearing symbolic representations of the Sacred Trinity and the Blessed Sacrament. But the glass is all gone, and no trace now remains of the east window except the hole in the wall and some of the old lead. The altar-piece is, or was, a painting representing Moses and Aaron, but a canvas, almost devoid of outline, blankly faces the clock in the gallery, which has stopped at twenty minutes to six. The organ still stands in its old place in front of the south wall, and quite close to the altar rails. The altar itself has been dismantled, and stands naked and bare amidst surroundings all reeking with wet. The pulpit is still high and dry, and the old-fashioned box pews have been stripped of their kneelers, which are used for the purpose of propping up some old pieces of wood against the window places on the north side (the dangerous side), the windows being all out. The font is of stone, and is carved with emblems of the Trinity, and with the arms of East Anglia, but it is now used as a receptacle for odds and ends. In the north-east corner of the building is a collection of old metal. The débris consists of the old bells and of an old stove, together with a number of mouldy hassocks. The stove is a common one, but the bells appear to be sound and good. They were taken down from the old square tower, which was removed several years ago by the City Engineer on account of its dangerous condition. There are several brasses still remaining, as well as a large number of mural tablets. It would seem that in former years many persons were buried within the walls of the church.

DELMONICO's, the one American restaurant of international reputation, is shortly to be removed from its old situation at the corner of Twenty-sixth Street, with a frontage both on the Broadway and Fifth Avenue, to Forty-fourth Street and Fifth Avenue. The new building will be quite different architecturally from the low and incommensurable brown stone one which has been the rendezvous of fashionable American life for so long, for it is designed in the manner of the Italian Renaissance, but adapted to modern uses. It is a four-story building, the main front of which on Forty-fourth Street measures 140ft., while the frontage on Fifth Avenue is 44ft., and is of a cream white made by a combination of terracotta, lime stone, and brick.

THE recent recovery of some remains of the famous triremes of the Emperor Tiberius, which lie at the bottom of Lake Nemi, is of great interest both to artists and antiquaries. The lake of Nemi, which is situated about seventeen miles south-east of Rome, is formed by the crater of an extinct volcano. Upon its broad bosom once floated the magnificent pleasure-house of the luxurious and licentious Emperor, Tiberius Claudius Nero, who, leaving his duties at Rome in the year A.D. 26, retired the year following to the island of Capree. His love of luxury and display was exhibited in the two famous pleasure triremes which bear his name, and the remains of which now lie buried in the lake of Nemi. The discovery referred to consists of the finding of several massive metal mooring-rings and tops of stakes by which the vessel could be moored to the quay. The rings are fixed in the mouths of bronze heads of lions, wolves, and Meduse, by the teeth of which they are retained in their proper places. These bronze heads are marvellously modelled, and the faces are

characterised by a life-like similarity to the animals represented. Despite their long immersion in the mud of Lake Nemi, they are all perfectly preserved, and the massiveness of their build and the beauty of their outline enable the spectator to judge of the magnificence of the structure of which they once formed but a secondary and almost insignificant part. It is said that the trireme to which these ornamental mooring-rings belonged was that dedicated to the worship of the goddess Diana, but about this and other points connected with these submerged vessels there had been recently a good deal of discussion. What is certain, however, is the fact that last week the Court of Rome ordered the castle and the lake of Nemi to be offered by public auction for debt. The sale of the Nemi estate will doubtless include the remains of the famous Tiberian vessels which now lie at the bottom of the lake.

In giving hints for beginners in architectural photography, the Amateur Photographer says: "The beginner in photography, like the beginner in other things, is usually ambitious, and thinks he will achieve the best possible results during his first few weeks. He generally starts off with portraiture, or some other different branch of the subject; but he will be wise to confine his earlier attempts to buildings, which are perfectly steady during the period of exposure, are always to be found when wanted, and, again, do not give a man a black eye for producing a caricature in place of a portrait. Even so, however, it is not to be expected that very high class work will be done at first, for there are certainly several difficulties to be overcome, which, however, are of such a character as to give the beginner an ample insight into the use of the different parts of his apparatus, and consequently a control over future results, whatever be the branch of photography he may ultimately take up specially."

THE Finance Committee of the London County Council, to whom, since the abolition of the Works Committee, the duty has been delegated of controlling the finances of the Works Department, has just issued a report, which contains a statement showing (1) the estimated and actual cost of works executed during the half year ended March 31st, 1897, and (2) the totals or the actual cost and of the final estimates, or the amount of the schedule value, of all works executed by the Works Department since its creation. In all thirteen estimated works have been completed and reported during the half year. The total of the original estimate for these works was £23,525, the final estimate being £24,099, and the actual cost £25,563, showing a balance of cost above estimate of £1463. The loss on the half year has been solely occasioned by the work on the extension of the Wandle branch sewer, for which the final estimate was £9665, and the actual cost has been £12,011, or a balance of cost above estimate of £2006. There is a slight excess in cost over estimate in two or three of the other items, but an analysis of the table shows that there has been considerable saving on some of the works. This has been the case particularly in the work done for the Housing of the Working Classes Committee. The central laundry in the Boundary Street area, which was estimated to cost £6532, has been constructed for £6103, showing a saving of £429, whilst on the construction of a sewer on the same estate, estimated to cost £1454, a saving of over £300 has been effected. Small works executed for the Fire Brigade Committee also show satisfactory results. The table detailing the cost of jobbing works carried out during the half-year by the Department for the different committees of the Council gives the schedule value of the works as £16,758, and the actual cost as £15,869, showing a balance of cost below schedule value of £889. The value of the jobbing work done for the Bridges Committee was put at £2443 and the actual cost was £2185, for the Fire Brigade Committee £2877 and the actual cost £2772, for the Main Drainage Committee £6670 and the actual cost £6300, and for the Highways Committee

£1354 and the actual cost £1284. An interesting statement follows showing the totals of the actual cost and of the final estimates, or the amount of the schedule value, of all works executed by the Works Department since its creation. This shows that up to March 31st of this year the final estimate for all the estimated works carried out by the Department was £459,772, and the actual cost £462,897, making a balance of cost above estimate of £3125. The schedule value of jobbing works executed from April, 1895, when the system of a schedule of prices was first tried, to March 31st, 1897, was £56,176, and the actual cost £52,260, showing a balance of cost below schedule value of £3915.

MR. PAUL RAMOND writes with reference to a supposed antiquarian discovery at Birkenhead Priory: "With your kind permission I will give a few interesting facts about the Priory that may be interesting to your numerous readers. The Priory was founded by Hamon de Masci in the year 1150, in honour of St. Mary and St. James, for sixteen of the monks of the Benedictine order, and was an auxiliary of St. Werburgh's, Chester, now the cathedral of that city. Many charters were granted to the monks, amongst others, one by King Edward III., in 1332, conveyed the right of ferryage from Birkenhead to Liverpool. The landing-place may be traced in Birkenhead to this day. A discovery among the ruins took place in 1818 that will interest those of an antiquated turn of mind. An ancient gravestone was discovered during excavations, as well as three skeletons in a good state of preservation. The stone, which is now inserted in the outer wall of the Lady Chapel, can now be seen, and bears the following inscription:—'Here lieth the good vicar of this house, who died 14th May, 1473, Thomas Rainford, on whose soul may God have mercy.' The stone is of red granite, and the inscription is in Latin, the above being a translation. If the Birkenhead Priory was many miles away it would probably be better known, but, being in our midst, people are apt to forget that such a grand old monument of the middle ages exists at our very door."

THE recent report issued by the Executive Committee in charge of the fund for the exploration of the Roman town at Silchester, near Reading, contains some interesting reading. During the seven years since the fund was established, the excavations have brought to light twenty-five complete houses and parts of others, a private bathing establishment, a Christian church, two temples, remains of the west gate, and a series of buildings which the authorities believe to have been extensive dye works. The north and south gates have been re-examined, and another small gate has been found on the west side. The whole of the very valuable and interesting antiquities, together with a quantity of the architectural remains, have been placed in the Reading Museum.

FOR many years Paris has been familiar with "synchronised clocks" worked on the pneumatic system. They are to be found everywhere; they are part and parcel of the street life of Paris, and not the least of the accessories which make that life so pleasant. The first step which will bring London into line with the metropolis of our neighbours has at last been taken. London has now a clock—the pioneer clock, it is to be hoped, of hundreds to follow—which tells the time of day or night without requiring winding up, being controlled by a self-wound electric pendulum in the neighbourhood, which also works a number of smaller dials on each side of Regent Street. The pioneer electric clock is fixed high up on the frontage of Piccadilly Circus, adjacent to the Criterion. The hours on the dial are marked by twelve fixed star-like electric lights, and the hands themselves are studded with other electric lights, and a very pretty object it is at night. The hands move forward with each half-minute of Greenwich mean time, and the entire mechanism consists only of the dial, the hands, and a single wheel, with an electric magnet to work it.

THE R.I.B.A. has just inaugurated an innovation—it has announced the list of meetings and papers to be read thereat, together with the dates of the meetings throughout the forthcoming session. The list is as follows:—November 1st, first general meeting, President's address. November 15th, "Notes on Renaissance Architecture in Malta, with special reference to the buildings of the Order of St. John," by Mr. A. S. Flower, M.A., F.S.A. November 29th, business meeting. December 13th, "Brickwork Tests: report on the third series of experiments," by members of the Science Standing Committee. January 17th, award of prizes and studentships, preceded by business meeting. January 24th, President's address to students: presentation of prizes. February 7th, "The Housing of the Drama," by Mr. E. O. Sachs. February 21st, "The Mediæval Campanile at Rome," by Mr. J. Tavenor Perry. March 7th, Business, including election of Royal Gold Medallist. March 21st, "The Heraldry of Antiquity," by Mr. G. H. Birch, F.S.A.; and "Heraldic Drawing," by Mr. J. D. Crace. April 4th, "Artistic Copyright," by M. G. Harmand, Avocat à la Cour d'Appel, Paris. April 18th, "Domestic Architecture in the United States," by Mr. A. N. Paterson, M.A. May 2nd, annual general meeting. May 16th, "The Libraries of the Middle Ages," by Mr. T. G. Jackson, R.A. June 6th, business: annual elections. June 20th, presentation of the Royal Gold Medal: address by the President.

At a Court of Common Council the Lord Mayor submitted a letter from Mr. D. P. Sellar, of Glen Doll Forest, Kirriemuir, and of Brentwood, Essex, offering to the Corporation the gift of 200 paintings by old English, Dutch, and Italian masters, and suggesting that his Lordship, with the President of the Royal Academy, should pay him an early visit for the purpose of seeing the works of Art. This handsome offer was accepted with the thanks of the Court.—A large deputation of ratepayers of the Coleman Street ward attended the Court, and were heard as to their serious objections to a printed scheme of the Bridge House Estates Committee for "improving" premises in Finsbury Circus, West Street, London Wall, and the neighbourhood. Eventually the question was adjourned for a fortnight to allow the residents time, which they alleged had not been afforded them, to express their views with reference to the matter in the form of a memorial.

THE Egypt Exploration Fund will issue to its subscribers in a few days the Archaeological Report for 1896-7, which, besides the usual review of progress in all departments of Egyptology during the past year, will contain a full account by Mr. B. P. Grenfell of his excavations at Behneseh (Oxyrhynchus), which resulted in the discovery of the "Logia;" and also a collation by Mr. A. S. Hunt of some four chapters of Thucydides from a first century papyrus, found at the same time.

A VERY interesting discovery of Roman coins at Okehampton links the ancient borough more closely with the past. About three weeks ago one of the road contractors (Mr. R. Furze) was at work on the Okehampton Park, a little distance above the railway station, when about three feet under the ground he came across a hoard of Roman coins to the number of 130. The Rev. S. Baring-Gould, who, as secretary of the Dartmoor Exploration Society, was keenly interested, after a most exhaustive search succeeded in unearthing forty additional coins, making a total of 170. The coins are of the third brass series, and are nearly all of the reign of Constantine—early in the fourth century. The chief value of the coins lies in the fact that they are the first remains of Roman times found on Dartmoor. It has long been a point of dispute among authorities on the subject if the remains of the old camp on Dartmoor are Roman or British; but the finding of the coins on Dartmoor does not prove the presence of the Romans on the spot, notwithstanding the so-called remains of the Roman road and camp.

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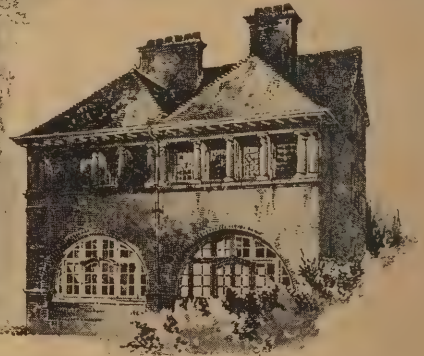
HOUSE AT TANS-MILL-ACT
FOR MISS LUCY FOWLER

HOUSE AT TANS-MILL-ACT
FOR MISS LUCY FOWLER

BOWDEN-GREEN
ENTRANCE FRONT



HOUSE ON AVE. E-ND
HARROW



HOUSE IN STATION-ROAD
BARNET
FOR MRS. J. H. ALF. F. S.



HOUSE AT LEWIS-SUSSEX
FOR EDWARD S. NORTON ESQ. J.P.



GARDENERS COTTAGE
THE TACK-HARROW



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Surveying and Sanitary SUPPLEMENT.

OCTOBER 27TH, 1897.

Practical Carpentry and Joinery.*

By GEO. ELLIS.

(Continued from page 197.)

ROOFS.—In dealing with this important subject, the space at my disposal prevents any reference to the theory, of the composition and resolution of forces involved in the designing of framed trusses, and, therefore, these remarks are confined to the practical details connected with the examples given, which are typical of the varieties met with in ordinary practice.

THE LEAN-TO (Fig 28) is the simplest form of roof it is possible to construct, and consists of a number of rafters birdsmouthed at each end on to wall plates. The top plate is either built into the wall of the main building, or rests on bricks corbelled out therefrom, every few feet; as indicated by dotted lines in the Fig. Sometimes they are fixed by wall hooks driven in the joints, with the ends turned up square to grip the plate.

THE COUPLE ROOF (Fig. 29) is formed with two sets of rafters pitched against each other, their lower ends fixed to the wall plates; the ridge-board being introduced between their top ends to steady them and facilitate fixing. This form of roof having a strong tendency to push out the walls, should not be used for greater spans than 11ft., or the weight would become excessive. Suitable scantlings for spans up to 8ft., are: Rafters, 2½in. by 2in.; ridge, 7in. by 1½in.; span, 11ft.; rafters, 4in. by 2½in.; ridge, 7in. by 1½in.

THE COUPLE-CLOSE ROOF, Fig. 30, is formed by nailing ceiling joists to the feet of the rafters, and they should be fixed also to the wall plates for additional security. This form and the V-Roof (Fig. 31), in which the party walls of the adjoining houses take the place of ridge boards, the feet of the rafters being carried by the gutter-plate (the ends of this plate are built into the front and back walls and the framed partition supports the middle) are much used for cottages, the latter form, when the front wall is carried up to the height of the party wall, is known as a "parapet front roof." This class of roofs are frequently

used for spans up to 22ft., and when used with slate coverings at a pitch of not less than 45° may be considered safe, but for heavier coverings and lower pitches 18ft. should be the limit of span. Scantlings, 14ft. span; rafters, 4½in. by 2in.; ridge, 7½in. by 1½in.; span, 18ft.; rafters, 5in. by 2in.; ridge, 8in. by 1½in.; ceiling joists, 4in. by 1½in. or 3½in. by 2in.

THE COLLAR-BEAM ROOF, Fig. 30, is also used to illustrate this roof, the dotted lines indicating the collar-beam. This form of roof is useful, as it increases the available height for room space. The collar, G, should not be more than one-third the rise above the wall plates, as it acts as a strut to the upper part, the weight of which will bend the rafters lower down and thrust the walls out. It is advisable to nail the collars on the rafters, as notching them in weakens the latter; when,

incident to its construction, and the pressure due to the weight of covering, &c., are met by the smallest number of parts, so arranged that it shall be rigid and unalterable, composing the various thrusts into a dead weight upon the walls.

THE KING-POST TRUSS, of which Fig. 32 is a type, approximates most closely to these requirements. This is composed of two principal rafters, P R, which are prevented from spreading by framing their feet into the tie beam, T, and suspending between their upper ends the king post, K, which in turn supports the tie beam at the middle, for it must be borne in mind that the king-post does not rest upon the tie beam, but is cut short, and the tie beam brought up to its foot by a strap or bolt, the usual allowance being ½in.; this counteracts the sagging that would otherwise take place when the truss is set up, and the joints

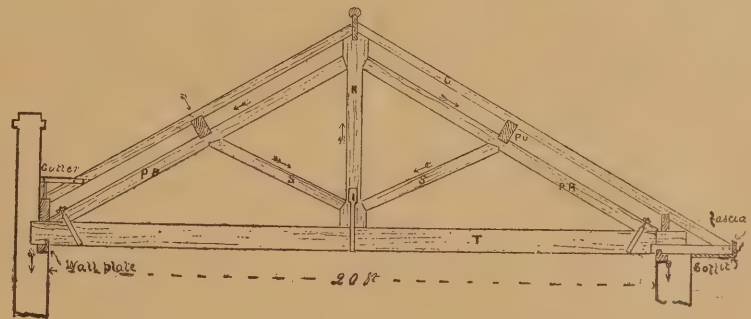


FIG. 32. KING-POST TRUSS.

however, they are notched in the best method is shown in Fig. 30A.

In spans of greater width than 18ft. or 20ft. the rafters bend with the weight, and require support, this is accomplished by arranging strong frames, called trusses, under them, about 8ft. or 10ft. apart. Across these stout timbers, called purlins, are laid, that take the weight of the rafters in the middle, and collect it upon the trusses. These transmit it to the walls in a vertical direction. The weight is distributed over the whole bearing surface of the walls by means of the wall-plates; these further, when copped into the horizontal member of the truss, acting as a tie to the walls. The ideal truss is one in which all the stresses

have taken their bearings. The tie beam should not be cambered more than this, or its tendency will be to push the walls out when it settles; any unsightliness through subsequent sagging that may be feared should be met by sinking the ceiling joists deeper towards the middle. The principals are supported immediately under the purlins, P U, by struts, S, springing from the foot of the king-post, that is cut out as shown to receive them, and also the heads of the principals. This is called "joggling"; the piece left on to form the abutment is termed the joggle; these pieces should not be made wider than 2in., or the amount of shrinkage will be sufficient to make the struts short eventually, however well

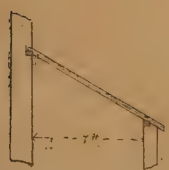


FIG. 28. LEAN-TO ROOF.



FIG. 29. COUPLE-ROOF.

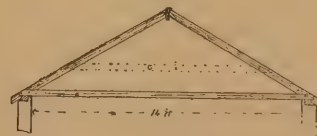


FIG. 30. COUPLE-CLOSE AND COLLAR-BEAM.

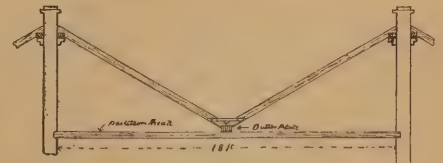


FIG. 31. V-ROOF.

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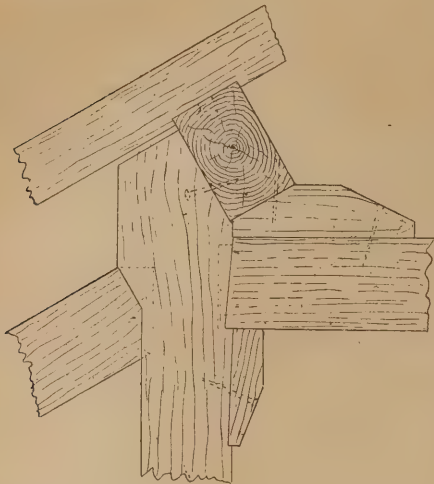


Fig. 36. DETAILS AT HEAD OF QUEEN-POST.

fitted at first; all the shoulders and abutments should be cut at right angles to the directions of the strains, which are indicated by the arrows in Fig. 32. The joints should all be made with mortice and tenon, the tenons a quarter of the thickness, but not of any great length, 1in. will usually suffice. Their object simply being to prevent side movement, deep mortices unnecessarily weaken the tie beam and king-post. Above all, see that no mortice is sunk into the body of the king-post as if calculated at a minimum scantling, to do so would seriously weaken it. When ceiling joists are used they should be notched on, not into, the tie beam, as in that case the under edge of the beam will be in tension, and parts in tension should never be cut into; and for the same reason straps are preferable to bolts for drawing up the tie beam. The purlins must be coggled on to the backs of the principals, and used in as long lengths as possible, as they then become beams fixed at both ends, and the increase of strength as compared with the same timbers framed between the principals is as 3 to 2. The ridge-board, R, carries the top ends of the common rafters, CR, and is notched down into the king-post, thereby steadying the top parts of the trusses. The common rafters in low pitches should either be stump tenoned into the ridge-board or notched over an inch fillet nailed on its side, their lower ends birds-mouthed to a wall-plate, as in Fig. 33, or to a pole-plate, P, Fig. 32, which is spiked on the ends of the tie beams; they ought also to be coggled or notched to the backs of the purlins. In Figs. 34 and 35 are shown enlarged details of the joints and strap at the foot of the king-post. The strap is of wrought-iron, 2in. by 1/4in., with slots for the insertion of the jibs and cottars to draw up the tie beam; the mortice in the king-post must be kept as much higher than the slot in the strap as the post is cut short. Heel straps may be used with advantage at the feet of principal rafters (and the more they approach the horizontal the better (see Fig. 33), but they are unnecessary at the heads of the principals or the struts as these will never shift if properly framed. The tie beam is coggled on to the wall-plate, as shown in Fig. 37, and the best position for the latter is the centre of the wall to which it is

secured by bedding in cement. It is usual to make all members of a truss of equal thickness throughout, as more convenient in construction, although occasionally this gives an excess of strength in the struts. A ready way of finding the necessary thickness of a truss is to divide the span by five and call the quotient inches, this will give the thickness required; make the struts square, and the principal rafters and the body of the king-post an inch wider than the thickness; for the depth of the tie beam, assume 9in. as a standard for a 20ft. span, and for each 5ft. additional, add 1in. to the depth.

THE QUEEN-POST TRUSS (Fig. 33) is used for spans of upwards of 30ft., as the unsupported length of the tie beam should not exceed 15ft., or of the common rafters 8ft. There are two suspending pieces in this truss. The queen's, kept apart at the head and foot respectively, by the straining beam and the straining sill; when the extent of the span will not permit of the above conditions being fulfilled additional suspending pieces must be inserted, as shown in dotted lines in the drawing. These are called princesses; a king-post can also be placed over the straining beam to support its middle and collect the weight of the roof above the purlins. Roofs of great span are, however, now usually made of iron, as they can be made much lighter and more economically than of wood. The description of them does not come within the scope of these articles, but it may be mentioned that wrought-iron bolts may be substituted for king and queen posts with advantage in wood trusses. A similar method may be used to ascertain the dimensions of the timbers for the queen truss, as advised for the king-post—viz.: divide the span by 8, and the quotient will give the thickness in inches; add 1in. for tiled roofs; any fraction less than 1/2in. may be discarded for slate roofs. The standard depths for 32ft. span are—tie beam, 11in.; principals, 6in.; add 1in. for each 5ft. of span additional, the queens to be 1in. wider than thickness. The best form for straining beam is to make it so that its depth to its thickness is as 10 to 7.

(To be continued.)

THE Commissioners of Sewers have resolved to acquire the ground leases of Nos. 1 to 4, Cheapside, and 51, Newgate Street, held by Messrs. Fandel-Phillips and Company, for the sum of £69,000, for the purpose of effecting an improvement at the western end of Cheapside, extending from Newgate Street to Paternoster Row.

MR. JOHN A. LANGSTON writes: "As a means of ventilating the Metropolitan Railway, would it not be advisable to remove all the roofs from all the stations, thus making each station an air shaft? Low platform coverings for the comfort of passengers could be substituted. Let this be tried before making any more blowholes."

IMPROVEMENTS AT POPLAR HOSPITAL.

THAT the public mortality decreases year by year is a well-known fact, and that as much credit is due to improved sanitary arrangements as to greater medical skill, is generally conceded. In a recently published technical work the author states as his opinion that the time is fast approaching when medical men will acknowledge that the improved state of the public health is due as much to architects as to themselves; and we are prepared to heartily endorse this opinion after inspecting the new wings at Poplar Hospital, just completed under the superintendence of Mr. Rowland Plumble. The supervision of the work was entrusted to that veteran clerk of works, Mr. Sutton, who conducted us over the works. The Poplar Hospital, although not the largest, is one of the best managed Hospitals in London. We were much struck with the extreme cleanliness displayed everywhere. The old portion of the Hospital had been re-painted and decorated throughout; the ceiling and walls, &c., in the basement mostly being painted with pleasing yellow or grey tints. Many of these rooms are provided

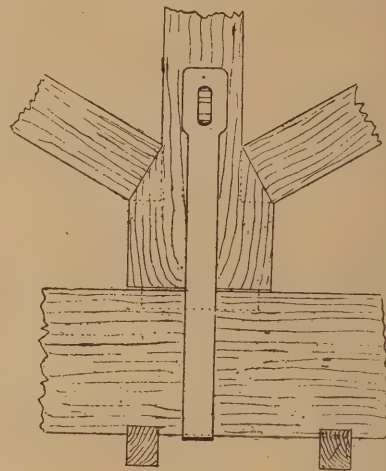


Fig. 34. DETAILS OF FOOT OF KING-POST (ELEVATION).



Fig. 35. SECTION.

with sinks and water fittings. It was pointed out to us that should a pipe require attention there was no excuse for the workmen commencing upon the wrong one (none of which were of course embedded in the walls), because each was painted a special colour according to the different purpose for which it was used.

THE OLD WARDS

have also been freshly done up; the walls of these had previously been plastered with Keen's Cement and polished, and although beautifully white when first done, gradually grew yellow, patchy and unsightly; and have therefore been painted and varnished with a dark green dado surmounted by a very pale green filling, producing a most soothing effect. We noticed in these old wards the excellent condition of the teak polished floors with concave teak fillets, about 3in. by 3in., in lieu of skirting. There was also a coving of a similar description upon the ceiling, sharp corners into which it is difficult to get a brush, and which harbour dust and microbes, being avoided in every case. The dormitory stoves, standing in the centre of the ward without any visible chimney, strike the uninitiated as strange; each stove contains two fires, one at each end, enabling the patients to see the cheerful blaze from any part of the ward, the smoke being conveyed away under the floor by 9in.

FLUE PIPES ENCASED IN CONCRETE,

supported by 12in. by 12in. iron joists, one flue running to the right and one to the left until, after passing through the walls, they enter a chimney in the ordinary way. Upon the second floor we saw an example of what

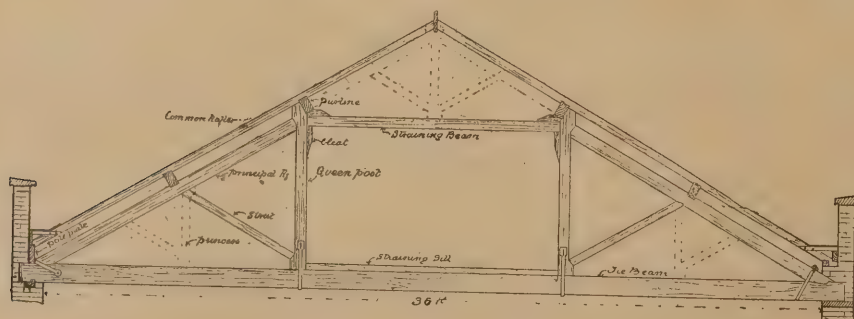


Fig. 33. QUEEN-POST TRUSS.

can be done in transforming a small box or ante-room into a comfortable apartment. The doorway of the small room in question opened out into a wide passage just where the same formed a junction with a wider landing, similar to the head of a T-square. Advantage was taken of this space, by a clever arrangement of door linings and shelves, to form narrow bookcases, which projected this doorway out upon the landing about 2ft., the shaped overdoor and the Lincrusta Walton panelling forming quite an improvement,

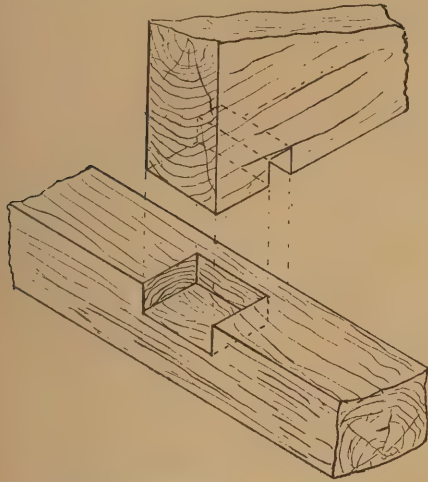


FIG. 37. SKETCH OF COGGING JOIST.

whilst inside the room, the bookcase arrangements and the high Lincrusta Walton dado, in imitation of wainscoting painted flat white with a dark green filling, formed a pleasant sitting and reading room. Interesting, however, as these decorative improvements were, the real purpose of our visit was to see the structural alterations which entitle the Hospital to claim the possession of the most complete and up to date operating theatre in London. This is situated upon the first floor, on a level with the principal wards. A large proportion of one side of this apartment is formed by casements surmounted by a glass roof, a nice soft light being obtained, chiefly reflected from a gable wall faced with white "Opalite," which, contrary to the expectations of certain fault-finders, has withstood the action of frosts throughout the whole of last winter without the slightest injury. Passing through another pair of doors we found ourselves in the new Operating Theatre. The plan is octagonal, the principal portion of the light being obtained from above. The roof is domed for half the distance up, and surmounted by a lantern light glazed with chequered glass. The sides of this lantern light are fitted with sashes hung upon centres for ventilation, and there are also two Boyles' exhaust ventilators fixed upon the top of the same, and ingress gratings with flues and ventilators fitted in the walls on either side. The under-side of the rafters are covered with zinc Emdeca plates enamelled a light pattern. The floor is mosaic, brought up the walls about 3-in. in the form of a coving in lieu of skirting; sharp corners being avoided in every part. The walls are covered with "Opalite," this new material being a favourite with the eminent architect, and justly so. When we had occasion several years back to study the manufacture of glazed bricks, we found that to obtain a perfect glaze was an impossibility, and anyone who examines a glazed brick very closely will find small holes in the glaze, and if you spread a little ink upon it you will find that if allowed to remain for a time it will soak in and form a dark ring round each of these small pin-holes, thus showing that the glaze, which is really a thin film of glass, does not always become thoroughly incorporated with the brick, and it also easily chips off, especially at the edges. Here, however, was a material, the glaze of which was perfect, without a hole into which the finest needle-point could penetrate or the most microscopical of microbes take up its

abode, and the delicate tints and reflective capacity of which far surpassed that of the finest glazed brick which it is possible to obtain; the joints too being so close that a thin knife-blade could not be inserted. In one corner of the theatre we noticed a lavatory fitted with silvered taps which can be worked without using the hands, by pressure up on pedals with the foot, hot or cold water thus being turned on or the dirty water run off. This arrangement is of undoubted value to a doctor who has just been operating. The theatre is lighted by several surprise pendants, fitted with incandescent burners and mantles; the mechanism of these pendants is just the thing required here, for not only do they slide up and down from the ceiling, but, being fitted with universal joints, can be twisted round in any direction, and having a counterbalancing arm, the flame can be adjusted to any angle by a slight touch. The Examining Room, on the ground floor, is a spacious apartment, part of it being in the old building, the comparatively low, flat ceiling of which portion was covered with zinc Emdeca plates, enamelled in a pleasing pattern in light colours. The outer walls, forming

THE NEW ADDITION

to this room, are composed of deal framing and casements upon a brick foundation, surmounted by a lantern light, and the whole glazed with chequered glass which admits plenty of light, and by opening the side ventilators an unlimited quantity of air can be obtained. The walls are covered with "Opalite," a blue dado being surmounted by a brown border and white filling. A slow combustion stove with green tiles is fixed in this apartment; while the fittings, whether they are the copper sterilising apparatuses, glass shelves, enamelled sinks with their brass taps, for both hot and cold water, all glisten and sparkle with cleanliness. The alterations we have been describing are all extensions to, or improvements in the old building.

THE NEW ISOLATION WARDS,

however, are an entirely new erection. To reach them it is necessary to pass outside the old building. The entrance to the new building containing these Isolation Wards is approached through a covered way, open at the sides. The exterior is substantial but plain, but the beauty of the interior is a thing to be admired. The floors are mosaic

are all of white earthenware, the cocks and fittings being of brass. In one of the lavatories we noticed that the water pipes ran down the face of the wall, and were enclosed by a slate casing. Instead of this being painted, sheets of "Opalite" had been fixed to it, producing an effect similar to the other parts of the walls; this of course could not have been done with glazed bricks or tiles, and although it might seem to some people a trivial advantage, it is these small arrangements which lead in the direction of perfection in architectural decoration.

Surveying and Sanitary Notes.

THE foundation-stone was laid last week of the commercial port which is to be built at Vladivostock.

AN indication that the improvement in Whitehall, London, has entered upon a serious phase is furnished by the fact that the principal part of the block of buildings on the north side of the street is advertised for immediate sale for demolition. Each house is divided into sections, and the windows of each section are numbered in huge letters according to the catalogue. This gives to the street an extraordinary appearance of desolation, which is heightened by the fact that the authorities have come to the conclusion that the moment is an opportune one for repaving the road.

MR. A. F. TERRELL SHAPLAND writes from Withycombe House, near Exmouth:—"Will you allow me, a new resident within the urban district of Exmouth, to call the attention of the Local Government Board and the public to the present sad state of Exmouth? According to the last report of the medical officer, we have had in three months twenty-seven cases of typhoid, three of diphtheria, and forty-nine of measles. I believe it is generally admitted that the drainage is very bad and the sewers are badly ventilated, and yet the authorities have been for months and are still considering what to do. At the last meeting Mr. Ley, a former chairman, a retired medical gentleman of local note, and indeed the most public man in the town, actually admitted

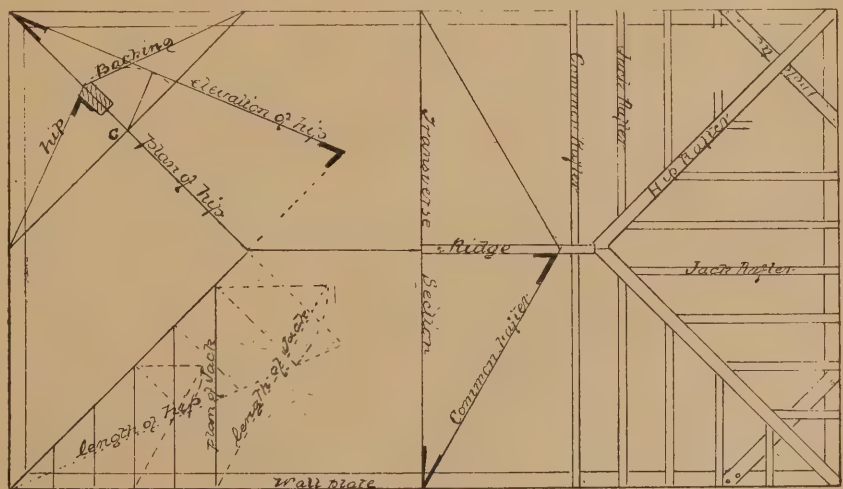


FIG. 38. PLAN DIAGRAM OF HIPPED ROOF.

throughout, being made with a concave coving or filleting, as before described in the Operating Theatre; and the walls covered with "Opalite" in various tints, corners in every case being avoided, both at the angles of the rooms and round the ceilings. The building is warmed throughout by radiators. Hydrants are fixed upon every floor, and the nature of the materials used for floors, ceilings, and walls are of such a nature that they can be sluiced with water and disinfectants at any time without damage. The baths, sinks, and basins

that 'they did not know what to do!' Surely, sir, if the authorities admit this, is it not time that the Local Government Board, ere too late, taught them their duty, or shall we wait till we get like unhappy Maidstone before anything is done? Are there no surveyors of eminence in this country able to deal with this question? In addition to the above, our water supply comes from a sheet of water on the Common, and not being walled in or fenced is liable to be polluted by man or beast. Exmouth must be 100 years behind the age."

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Oct. 30	Christchurch, Hants—Workhouse Addition	Guardians	A. Druitt, Clerk, Christchurch.
" 30	Falmouth—Infirmary	Guardians	J. H. Genn, Clerk, Falmouth.
" 30	Horrabridge, Devon—School Alterations	Whitchurch School Board	W. Squire, Architect, Tavistock.
" 30	Cardigan—Four Dwelling-houses		Captain T. Williams, Catherine-row, Cardigan.
" 30	Chelmsford—Cottage Residence		G. E. Clare, 66, Duke-street, Chelmsford.
" 30	Redruth—Farmhouse	A. Knucky	S. Hill, Architect, Green-lane, Redruth.
" 30	Truro—Technical Schools	Passmore Edwards	A. Blenkinsop, Secretary, Truro.
" 31	Wrexham—Latrines	County School Governors	J. Morison and Son, 10, King-street, Wrexham.
Nov. 1	Manorhamilton, Ireland—Repairs		E. O'N. Clarke, County Surveyor, Carrick-on-Shannon.
" 1	Barry Dock, Wales—Offices	Barry Railway Company	Company's Engineer, Barry Dock.
" 1	Hornchurch—School, &c.	School Board	E. M. Whittaker, 1, Gresham-buildings, Basinghall-st., E.C.
" 1	Bideford—Alterations, &c.		R. T. Hookway, 12, Bridgeland-street, Bideford.
" 1	Frizinghall, Bradford—Pair of Semi-detached Villas		Isitt, Adkin, and Hill, Prudential-buildings, Bradford.
" 1	Gosport—Public-house		A. H. Bone, Architect, Cambridge Junction, Portsmouth.
" 2	Brighton—Buildings	Guardians	H. S. Reed, Offices, Princes-street, Brighton.
" 2	Chelsea, W.—Meat Store, &c., at Infirmary	Guardians	Landsell and Harrison, 12, Compton-terrace, Highbury, N.
" 2	Droitwich—Passenger Station	Great Western Railway Co.	Engineer, Paddington Station, London.
" 3	Farnham—Joint Isolation Hospital		S. Stapley, West-street, Farnham.
" 3	Barnes, S.W.—Six Shops and Dwelling-houses		F. and W. Stocker, 90 and 91, Queen's-st., Cheapside, E.C.
" 3	Hull—Workhouse Kitchens, &c.	Guardians	T. Beecroft Atkinson, 11, Trinity House-lane, Hull.
" 3	Lanchester—Shop	Guardians	G. T. Wilson, 121, Durham-road, Blackhill.
" 3	Llanwano, Wales—School Extension	School Board	A. O. Evans, Post Office-chambers, Pontypridd.
" 5	Bedford—Post Office	Commissioners H.M. Works	Office, 12, Whitehall-place, S.W.
" 5	Limerick—Tiling Kitchen	Free Library Committee	W. E. Corbett, 28, Glentworth-street, Limerick.
" 5	Winchfield, Hants.—Cottage Home	Guardians	F. S. Chandler, Clerk, Union House, Winchfield.
" 9	Maryport—School Enlargement	School Board	C. Eaglesfield, Architect, Maryport.
" 9	Sheffield—Stables, &c.	Corporation	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 10	Homerton, N.E.—Alterations to Children's Homes	Hackney Union	F. R. Coles, Clerk, Hackney Union, Homerton, N.E.
" 15	Horsey—Central Library	Urban District Council	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N.
No date.	Batley—Alterations	J. B. Jubb and Co.	J. B. Jubb and Co., Union Mills, Batley.
"	Fahan, Ireland—Chancel		J. E. Walsh, Bishop-street, Londonderry.
"	Leeds—Villas		G. Hutton, 72, Albion-street, Leeds.
"	London—Synagogue		M. Goldstein, 26, Whitechapel-road, E.
"	London, E.—School Repairs	Guardians of Mile End Old Town	W. Thacker, Clerk, Bancroft-road, Mile End, E.
"	Shrewsbury—Additions to Premises	Industrial Co-operative Society, Ltd.	Architect, Co-operative Wholesale Soc., Ltd., Manchester.
"	Douglas—School	School Committee	J. M. Bottomley, 46, Albion-street, Leeds.
"	Market Harbro'—Store Buildings		Coales and Johnson, Corn Exchange, Market Harbro'.
"	Leeds—Workhouse Alterations	Guardians	J. M. Bottomley, 46, Albion-street, Leeds.
ENGINEERING—			
Oct. 30	Sheffield—Retorts, &c.	United Gaslight Company	F. W. Stevenson, Company's Engineer, Sheffield.
" 31	Bolton Colliery, Durham—Putting up and Walling Staple		Boldon Colliery Office, Durham.
" 31	Manchester—Hydraulic Machinery	Directors of Sackville Estate Co., Ltd.	Sackville Estate Co., Ltd., 60, King-street, Manchester.
Nov. 1	Garth, Llangollen—Heating Apparatus		R. M. Davies, Garth, Llangollen.
" 2	London, E.C.—Engines, &c.	Shoreditch Vestry	Kincaid, Waller, and Manville, 29, Great George-street, S.W.
" 2	Wexford—Three Conical Buoys	Harbour Commissioners	J. F. Walsh, Secretary, Ballast Office, Wexford.
" 2	Barking—Fire Engine, &c.	Urban District Council	Public Offices, Barking.
" 5	Hull—Electrical Equipment of Tramways	Corporation	A. B. White, City Engineer, Town Hall, Hull.
" 10	London, S.W.—Electric Light Cables	Railway Department of Victoria Colony	Agent-General for Victoria, 15, Victoria-st., Westminster.
" 11	Southborough—Laying Gas-mains	Urban District Council	C. Woodall, Palace-chambers, Bridge-st., Westminster, S.W.
" 11	Southborough—Water-mains Extension	Urban District Council	P. Hammer, Clerk, Council Offices, Southborough.
" 30	Singapore—Street Lighting	Municipal Commissioners	C. C. Lindsay, 167, St. Vincent-street, Glasgow.
Dec. 31	St. Gilles-lez-Bruxelles—Gasworks	Council	504, Chaussée de Mons, Anderlecht, Brussels.
No date.	Pannal, near Harrogate—Trench, &c.	School Board	C. Kirby, 12, Princes-street, Harrogate.
FURNITURE AND FITTINGS—			
Nov. 1	Durham—Furnishing County Buildings		Architect's Office, 41, Fawcett-street, Sunderland.
IRON AND STEEL—			
Nov. 2	Swindon—Cast-iron Pipes, &c.	Water Board	Swindon Water Board, The Sands, Swindon.
" 3	London, E.C.—Wagon Underframes, &c.	East Indian Railway Co.	A. P. Dunstan, Secretary, Nicholas-lane, London, E.C.
" 12	Birmingham—Wrought-iron Steam Tubes, &c.	Water Committee	Offices, 44, Broad-street, Birmingham.
PAINTING AND PLUMBING—			
Oct. 30	Sheffield—Lead Piping, &c.	Water Committee	W. Terry, Water Department, Town Hall, Sheffield.
Nov. 1	Barrow—Painting and Graining		C. F. Jackson, 233 and 235, Dalton-road Barrow.
ROADS—			
Oct. 30	Basingstoke—Road Widening, &c.		G. Fitton, Borough Surveyor, Town Hall, Basingstoke.
" 30	Swinton, Lancs.—Carriageway	Urban District Council	H. Entwistle, Surveyor's Office, Swinton.
Nov. 1	Southampton—Road Works and Carting		W. J. Taylor, Surveyor, The Castle, Winchester.
" 1	Mountain Ash, Wales—Road Works, &c.	Urban District Council	J. Williams, Council's Surveyor, Town Hall, Mountain Ash.
" 2	Sunderland—Paving	Corporation	Borough Engineer, Town Hall, Sunderland.
" 2	Braintree, Essex—Kerbing, &c.	Urban District Council	H. H. Nankivell, Surveyor, Waterworks, Braintree.
" 2	Tottenham—Tarpaving, &c.	Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
" 2	Brentford—Tarpaving	Urban District Council	N. Parr, Clifden House, Boston-road, Brentford.
" 5	St. Fagans—Road Widening	Llandaff Rural District Council	J. Holden, Council's Offices, Queen's-chambers, Cardiff.
" 5	Hull—Granite Kerb, &c.	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 6	Bishop's Stortford—Broken Granite	Urban District Council	W. Gee, Clerk, Council Offices, North-st., Bishop's Stortford.
" 9	Horsey—Levelling, Paving, Sewering, &c.	Urban District Council	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N.
" 15	Batley—Paving Materials	Town Council	O. J. Kirby, Borough Surveyor, Market-place, Batley.
No date.	Manchester—Setts	Highways Committee	Chief Clerk, Highway Office, Town Hall, Manchester.
"	Lewisham—Kerbing, Channelling, &c.	Board of Works	Surveyor, Town Hall, Lewisham.
SANITARY—			
Oct. 30	St. Annes-on-Sea—Drainage Works	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
Nov. 1	Atherton, Lancs.—Sewage Works, &c. (3 Contracts)	Sewerage Board	E. Pritchard, 37, Waterloo-street, Birmingham.
" 2	Llanishen, Wales—Removal of Refuse, &c.	Llandaff Rural District Council	M. Warren, Clerk, Queen's-chambers, Cardiff.
" 9	London, E.C.—Pipe Sewers, &c.	St. Luke's (Middlesex) Vestry	Surveyor's Department, Vestry Hall, City-road, E.C.
" 16	Lythan, Lancs.—Sewerage Works	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
No date.	Manchester—Sewer Pipes, &c.	Paving, Sewering, Highways Committee	City Surveyor, Town Hall, Manchester.
TIMBER—			
Nov. 5	Limerick—Library Bookcase	Committee	—Baker, C.E., Gasworks, Limerick.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 30	London, N.—Designs for Offices		Tottenham School Board.
" 30	Sheffield—Designs for Centre Standards for Tramways.	£10 10s...	City Council.
Nov. 13	Byfleet—Village Hall and Club	£26 5s...	Committee.
" 20	Southend-on-Sea—Plans for Church...	Not stated	St. Albans Church Committee.
" 30	Wells—Plans, &c., for Public Hall	£25, £15, £10	Town Council.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£500, £300, £200	Corporation.
" 6	London, E.C.—Designs for Jubilee Medal...	£20, £15, £10	City Corporation.
" 15	Dorking—Designs for Infirmary	2nd Prize, £15; 3rd Prize, £5.	Urban Guardians.
" 15	Nottingham—Designs for Laying Out Cemetery, &c.	£100, £50	Corporation.
" 15	Nottingham—Designs for Cemetery Buildings	£100, £50	Corporation.
" 31	Bootle—Plans for Fire Station, &c.	£52 10s., £26 5s.	Corporation.
No date	Dukinfield—Town Hall	£40, £20	Urban District Council

LESSONS FROM THE PARIS CHARITY BAZAAR FIRE.*

BY EDWIN O. SACHS.

Author of "Modern Opera Houses and Theatres."

I AM going to recall some of the facts of the recent Paris Bazaar Fire, and I shall be doing so before the members of the Profession with whom to a great extent will rest the responsibility of future catastrophes of this description. For no profession is so closely associated with the erection of our dwellings, our public halls, our places of public entertainment, and all those many kinds of structures, not forgetting places of worship, amid which we spend our lives. Now, one of the greatest features of the nineteenth century has been the continual effort to prolong life, and you are, I am sure, doing much in this important movement by seeing that your clients live in sanitary surroundings, and thus avoid those terrible scourges of fever and other maladies which not so long ago used to decimate many communities. I need not here say how much the medical profession is doing in the interests of prolongation of life, or how, in fact, nearly every profession, and even nearly every trade, directly or indirectly, assists in adding to the longevity of the present and coming generations. Our public authorities, not forgetting the police, are much occupied in the same manner, for they try to protect our lives in numerous directions. And yet neither these authorities, nor architects, nor any profession, for the matter of that, has so far done very much for the safety of life from fire.

Now, it may be somewhat aside from the question of the Paris catastrophe, but it may interest you to hear that Great Britain alone has an approximate total loss of property by fire of seven million pounds per annum, and remember, this is an absolute loss of the nation's wealth, and the wealth of the communities concerned. The annual loss of life is very heavy, and the number injured exceedingly large. Now, quite apart from sentimental reasons, is it not very curious that in such a practical country as ours, we should allow this constant drain in life and property, and what is more, allow it to a far greater extent than is the case in several other countries which are by no means so business-like as we are, and are certainly not doing so much to prolong life as we do in this country? The object of reading this paper before you, and not, say, before some body of economists, some gathering of statisticians, or some association of public officials, is that to my mind, the architect and the surveyor often assisted by the civil engineer, can do far more in minimising our loss of life, and thus add to the longevity of our race, than any law or regulation can do for us. You know it is the old saying that "Laws are made to be broken," and I am sure many of you pride yourselves on your "cuteness" of having found some outlet, some makeshift or excuse, for avoiding some of the few requirements laid down by the public authorities in this matter of safety from fire. We all know how proud the architect is when, say, he has a factory case, with the lives of hundreds of employees involved, and he can go to his client and say: "Sir, I have saved you that emergency staircase which figured so prominently on your schedule," and mentally, perhaps, he thinks of the extra twenty-five guineas he will get for his successful negotiation. We know, gentlemen, how proud the theatre architect is, when fighting against some long list of requisitions, he can point out to the lessee: "I have saved you that exit; I have saved you that reduction of seats;" and maybe he also thinks of the extra fee, but certainly he never—any more than the architect with the factory case—gives a thought to the lives of those who enter the building on which he has advised. Don't let me be misunderstood; every

architect not only has the right but the duty to express his opinion on the requirements or requisition with which the public authority wishes his client to comply. We know full well that public authorities, with the very best of intentions, sometimes get ignorant officials, more especially in their junior ranks. We also all know the ambitious young official who prides himself on the long list of requisitions he has made at Mr. Tom Jones' theatre, and on having discovered the many faults of that playhouse all by himself. I am not trying to dissuade any architect from the fair, open-minded and technical criticism of any list of requisitions. But I consider it reprehensible, nay, wicked, to oppose every regulation for the safety of life and property for the mere sake of opposition, and for the mere sake of pleasing one's client. Study the requisitions conscientiously, and if you find exaggerated demands on the part of the authorities—mistakes, faddism—certainly try your best to get your client out of spending unnecessary money. If the authorities know you to treat matters seriously and fairly, you are sure to have far more consideration given to your arguments than if the reverse is the case. But again, don't oppose for the sake of mere opposition, or because it is the fashion to try to "best" the authorities. Now don't say that this opposition is at the instance of the client. The client very seldom wishes to

After the fearful loss of life in this building whilst used for bazaar purposes, and hence having its floor space in nowise blocked by seats or barriers, it would be well to remember that the premises had actually been previously used for theatrical purposes. The building had been equipped with a stage, with a raking floor, with fixed seats, and all paraphernalia and illuminants for dramatic performances, and such entertainments had actually been given on the premises. Both the stage and seats had only been removed to enable the structure to be adapted for the organisation of a charity bazaar.

Next it should be noted that the site of the building was in the Rue Jean Goujon, close to Rond Point of the Champs-Élysées on the one hand, and the Cours la Reine on the other, and hence it was situated in a much frequented part of the city. It was not hidden away in some back garden or placed in some outlying suburb. Roughly speaking, the ground has a frontage of over 90 metres, or nearly 300ft. Its depth averages 45 metres or 150ft. It is within a few hundred yards of a small police station in the Palais de l'Industrie, which also has a permanent fire watch from the "Régiment des Sapeurs Pompiers." An important station of the latter body is not far distant.

Speaking of the structure, nearly 80 metres of the frontage was taken up by the temporary building, the average depth of which was 13



AFTER THE FIRE. SKETCHED BY HARRY BUDDEN.

oppose the legitimate requirements of the authorities, or at least not until the architect has told him of all the savings he will try to effect by avoiding the regulations and requirements. Every factory owner knows what a fire would mean for his business, no matter how well insured he may be; every theatre owner and manager knows his responsibility well, and knows that the audience of to-day wishes to feel safe when taking their amusement. The opposition of 1897 to my mind mainly emanates from the architect. And I will go farther and say that it emanates not only from an inherent love for opposition to any so-called Building Act, but also from the architect's desire to show his client what he is worth. Now leave that kind of thing to the bad architect, who has no reputation to lose. Follow the lead of such men as your old friend Mr. Ernest Runtz, or say Mr. Darbyshire in the north, who, though both keenly asserting the rights of their clients, always try to give their places of entertainment good straightforward planning, in full accord with modern requirements. Give a hand yourself in stopping this fashion of opposition. Withhold your admiration from architects who are setting the bad example. Boycott such arch-miscreants as Mr. No-Acts, and Mr. L.C.C.-Hater, though they are old friends of ours, otherwise measures will have to be adopted to make architects personally responsible for their buildings, as is the case in other countries, and I am sure you would not like that.

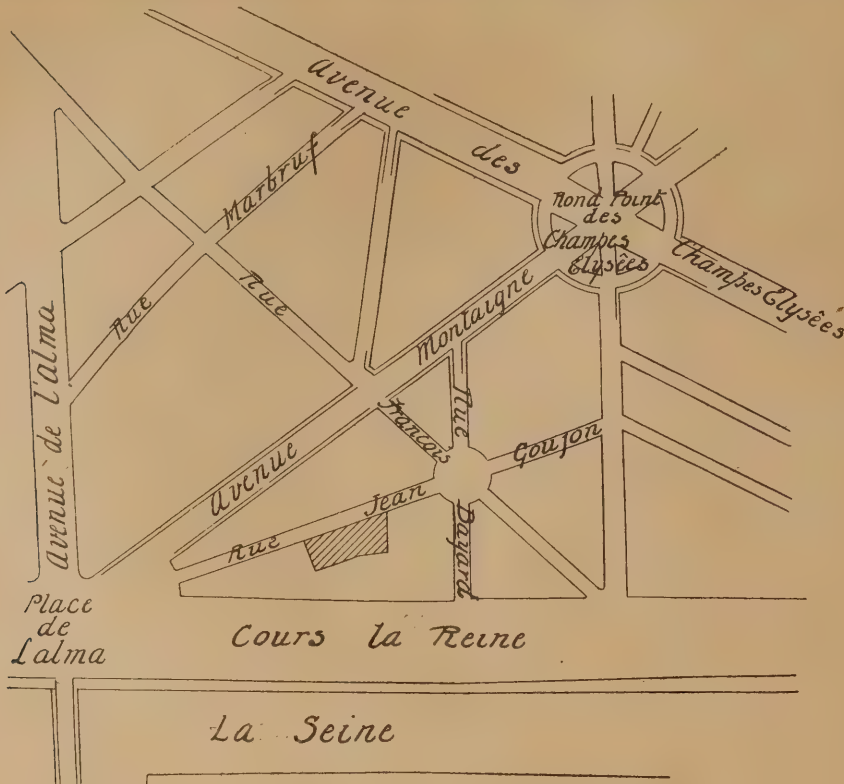
After these preliminary remarks, let me give a few facts about the Paris Bazaar Fire, and the construction of the building which was the scene of the holocaust.

Firstly, it should be noticed that the scene of the catastrophe was in a temporary structure

metres, and there were several small additions to the back, namely a refreshment room, a large store room, used at the time of the catastrophe as a cloak room, and the fatal cinematographie room. The last named annexe, which will be seen from the ground plan, was not, as far as the plan shows, in direct communication with the main building for entry and exit, the approach being from outside and the visitors passing through door No. 3. The main building covered about a third of the superficial area of the site, while two-thirds having an average depth of 32 metres, had not been built on. The site was enclosed on the back and two sides by walls of various heights from 15ft. upwards, and by the party walls of some adjoining houses. One of these blocks, the Hotel du Palais, has windows overlooking the grounds.

The plan of the building shows a long gallery constructed of a series of framed trusses, the whole of the work being in timber. All the walls were matchlined on both sides. The roof was partly covered with tarred felt and partly with glass. The total cost of the structure was about 12,000 francs, or about £480, of which sum nearly half was spent on the materials employed. The contractor carried out the work with particular regard to economy, and hence, perhaps, the lightness of the materials employed. So far as the contractor was concerned, the building appears to have been considered of a private character; little or no supervision apparently being exercised by any of the local authorities. The principal entry was through two doors, placed centrally, No. 1 and No. 2, and the visitors passed through a small vestibule and inner lobby in each case. There were four additional exits at the back, Nos. 3, 4, 5, and 6, of which No. 3 alone seems to have been well known,

* A Paper read before the Architectural Association on October 22nd, 1897.



SITUATION OF SITE.

owing to its forming the approach to the cinematographe annexe already referred to. There was another exit, No. 7, used for service purposes, with which only the management and the stallholders were acquainted, and there was also a small door from the refreshment annexe, No. 8, into the open. In the front of the building there were several windows to the office, the ladies' room, &c.

On both sides of the gallery there were rows of stalls, and the construction of these, together with the section of the building, is shown in the diagram I have had specially prepared from the working drawings in the hands of the contractor. The frontages of these stalls were faced with scenery, whilst the top of the hall was closed in by a velum of canvas. Perhaps I should also mention that the decorations to the stalls were old, worn, and very dry. The floor was of wood, resting on timber sleepers. On the exteriors the only attempt at decoration had been in the central feature.

It will be seen from the drawings that the glass at the top of the building must have been broken almost immediately, through the enormous velum becoming a sheet of fire. Further, it is evident that the velum must have broken away from the points at which it was hung, falling on those beneath it. The tar on the roof also dropped in a molten or burning state. The plan will explain how those farthest away from the centre, on the cinematographe side of the building, must

have been cut off directly the flames took a hold of the doors No. 3 and No. 1. It was further natural that there should then be a general stampede towards entrance No. 2, and to that part of the hall farthest from the cinematographe. The extra doors, No. 5 and No. 6, were apparently so little known that they were not used, and it appears that many of the visitors were caught at the entrance to the store annexe, which I have already stated was then serving as a cloakroom, and hence well-known to many of the ladies, who, in the excitement of the moment, must have associated it with an exit.

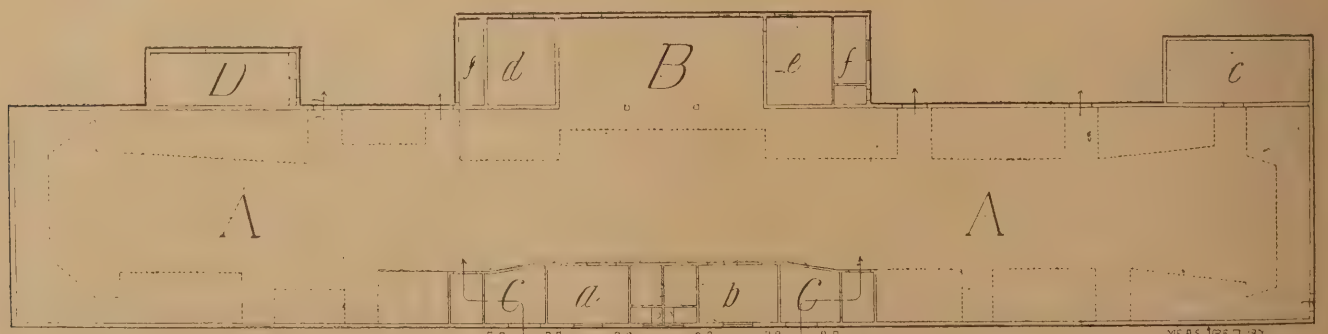
It is not my purpose to discuss the plan in detail, but there is one thing certain, and that is, that at first sight the number of exits, eight in all, would appear sufficient for a substantially-built structure which has its floor on the ground level. I would even go so far as to say that there are not many galleries of the same dimensions, standing under the control of a public authority in this country, that have a larger number of exits; but here it should not be forgotten that in the planning of places of public entertainment precautions are not based on the assumption that flames will spread with such rapidity as was the case among the decorations, fittings, and general appliances of this fatal structure. In a well-planned theatre of the most modern type there is always the supposition that some four or five minutes' time will be given to the audience

to leave their seats in the auditorium proper. There is one unfortunate feature of the planning of the Paris Bazaar I cannot, however, help noticing, and that is the manner in which the lobby to entrances Nos. 1 and 2 were set out with the view of excluding draughts. I am unable to get reliable information if the wings to these doors swung outwards. As to the doors Nos. 3, 4, 5, 6, however, I know that they opened inwards, and that one of them was blocked or bolted at the time of the catastrophe.

Looking at the plan of the building, its construction and contents, and considering well all the defects that such a structure must contain, I would yet point out that the extent of this calamity was due in a great measure to the fact that the majority of those present were ladies whose clothes must have undoubtedly caught fire immediately the lengths of canvas velum and burning tar fell. I have on a former occasion argued that English women are far more fearless in facing danger than their sisters of other nations, owing to their constant association with the various forms of sport practised in this country, and much has unfortunately been said to the effect that a panic of such dimensions would be impossible in Great Britain. I scarcely, however, think that my argument holds good in a case like the recent catastrophe at Paris, for the scene must have immediately been of such a terrible nature that even those whose profession makes them acquainted with the terrors of fire would, in all probability, have lost their presence of mind. It would not be doing justice to our French neighbours if I were not to say that, in spite of the severity of the panic, heroic deeds were done and many deaths died in doing gallant acts, acts which Englishmen and women would have been proud to be associated with.

If I may be allowed to classify, the Paris Charity Bazaar was a semi-public entertainment, held in a provisional building. As you know, our entertainments are either of a private character, of a semi-public, or of a public character, whilst the buildings utilised are either permanent structures specially erected for a specific purpose, permanent structures temporarily adapted for some such purpose, or they are provisional buildings.

As far as public entertainments in buildings specially erected for the purpose are concerned, nearly every country has already inaugurated some policy for preventing catastrophes. I here speak of the theatre, the music hall, the assembly room, &c. Europe has, in fact, every kind of legislation conceivable for the protection of the public in this class of structure. There has been hysterical panic legislation, ponderous regulations in which every detail is defined by law, also codes which leave practically everything at the discretion of an executive of experts, and regulations which are merely so by name, and are a farce because they cannot be put into force. There is no uniformity in the preventative legislation of the world, even in its elementary principles. If we study the regulations of different countries consecutively, with an idea of discovering what is really necessary, the result is most confusing. Now, I am not going into detail. But I will say,



MEASURED BY
EDWIN O. SACHS ARCHT.
10.3.97.

A—Bazaar. C—Lobbies.
B—Buffet. D—Animated Pictures.

GROUND PLAN OF BAZAAR BUILDING.

E—Management. F—Ladies. G—Cloaks.
H—Service. I—Offices.



SITE PLAN.

broadly, that some countries seem to consider that good construction is the essence of safety, whilst clear planning, watching, and inspection are forgotten. Other countries give all attention to endless regular inspection, and omit the watching; others, again, require inspection only; whilst others, perhaps, insist on good planning, construction, and ample inspection, but disregard the watching. It is time for some representative body of experts to decide what they consider necessary in the interests of the public. I am not going to raise the many questions as to the proper executive for locally determining or enforcing the requirements, nor shall I enter into the merits of individual regulations. I will simply call your attention to the want of uniformity in the main, and elementary principles for obtaining safety where we have to deal with buildings erected for specific purposes and where specific forms of entertainment are given.

Personally, I hold that for a theatre or music hall, clear planning is of greater importance to the audience than clever forms of construction, or the employment of materials having considerable power of fire-resistance; and, further, I contend that in such buildings the regular attendance of fire-watchers day and night, and more especially during performances, is more essential than any amount of regular or even surprise inspection. But, remember, this is only a personal opinion. There are no definite conclusions as yet arrived at by any body of experts representing the conflicting interests which play such a prominent rôle where our public entertainments are concerned.

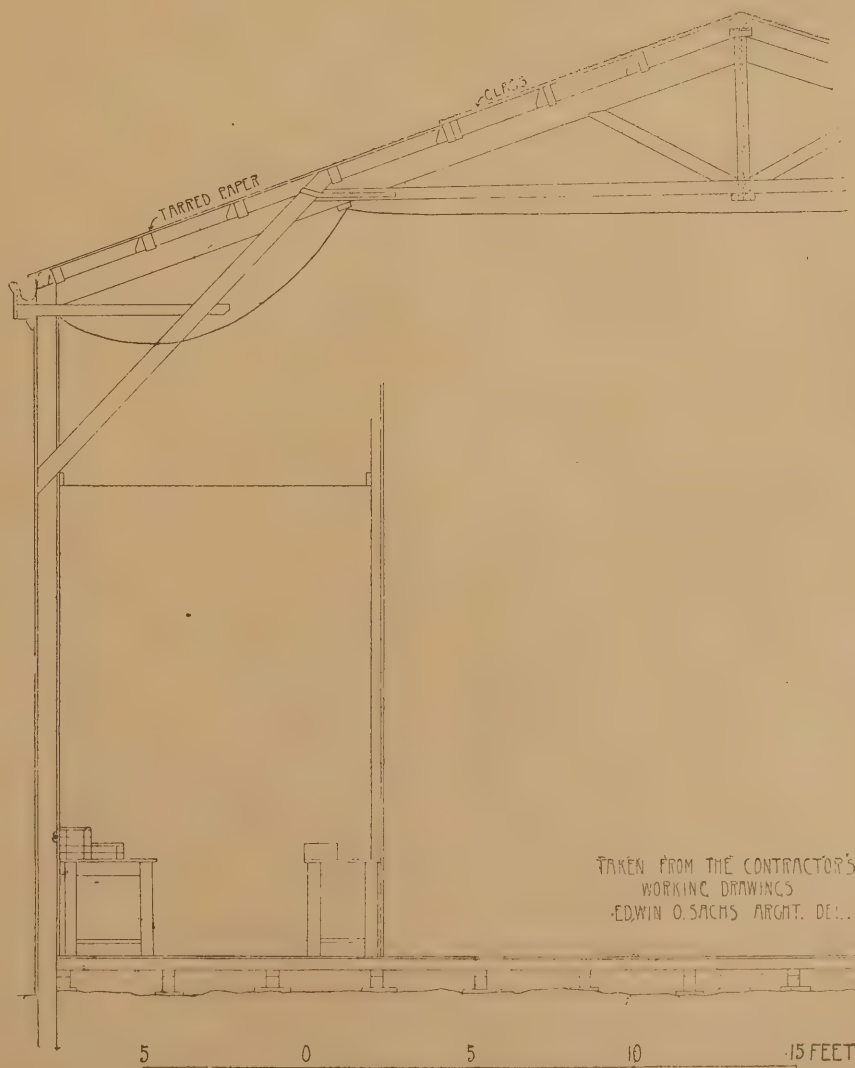
In expressing my opinion on the matter, I should, perhaps, say at once that I consider it the duty of the authorities to attend to the protection of life in the first place, and to the protection of property in the second. As we all know how easily a panic occurs without any fire, and how dangerous the rush of a frightened audience can be, the clear exit of ample dimensions and most direct route will be the greatest safeguard against loss of life, and perfect symmetry of plan of very great value. The prevention of a cause for panic is best guarded against by the constant presence of experienced and responsible firemen, who will on the one side recognise the possibilities of danger in time to prevent a fire, and on the other be able to act smartly in case of an outbreak. I do not wish to disparage good construction, or regular and surprise inspections; but I consider the most careful regulations as to construction and materials are of little practical value, so far as the safety of the audience is concerned, if at the same time the planning is not straightforward, and responsible firemen are not regularly in attendance. To take an extreme case, wood stairs will take the audience quite as quickly into the open as stone ones, and stone stairs with many winders and a complicated plan will be far more dangerous than wooden ones of straight flights of, say, fourteen steps each. Don't let me be misunderstood; of course, good construction and fire-resisting materials lessen the risk of an outbreak of fire, and I shall always advocate such construction and materials. But I have inspected many theatres built of slow combustion materials, and yet have found them

dangerous in the extreme through bad planning; and I wish to point out that a building erected entirely of fire-resisting materials is not necessarily the safest. It is also on account of my acquaintance with the fact that many important cities, though equipped with modern regulations for the erection of theatres, have no powers to enforce the presence of an official fire-watch during the performances, that I am anxious to lay stress on the necessity of watching, and not only inspecting, the theatre and music-hall of to-day.

All that I have said so far refers to the permanent building erected for a specific public entertainment, and even here, with given facts, I have to tender personal opinion, because we have not yet arrived at definite conclusions on the subject. What, may I ask, is the state of affairs as to semi-public and private entertainments in buildings, halls or rooms only temporarily utilised for gatherings of this description? Why, so far nothing whatever scarcely has been essayed, let alone decided. Legislation on the subject in this country is as non-existent as it is on the Continent. Why, we have not even as yet any practical definition as to what a private or a semi-private entertainment is. The whole subject is so delicate an one that even such despotic police administrations as those of Prussia and Russia have not yet felt their way. Where do the privileges of private entertainment cease? and when does an

entertainment assume a public character, not only as such, but more especially in respect to public safety? Cannot every man do exactly what he pleases on his own property, so far as entertainment is concerned, and as long as the general public is not admitted by payment? But is not a Foreign Office Reception on Her Majesty's Birthday in reality to all intents and purposes a public entertainment, and similarly, the ladies' political drawing-room meeting in Park Lane? Is not a bazaar, held in a tent, say, at the Botanical Gardens, and to which only members of the Society with their friends are admitted, a public entertainment? How many bazaars, let me ask, are held without payment for admission on private property, which are essentially of a public character? Think of the many meetings, so-called private theatricals, subscription balls, and other fêtes! How is classification to be attempted? How are we to define our entertainments? But here a suggestion, Is it necessary to classify at all? Is it essential to make limitations as to the different classes of our entertainments? I think not. Whilst most of our legislators at home and abroad are trying to define our entertainments and then to frame certain requirements for the safety of the public, why not let the character of the entertainment take care of itself. Let us look on every room over a given size as a place in which we may or may not congregate, with or without payment, to dance, to sing, to let others sing and dance, just as the case may be. Let the superficial area of any given room and its position alone govern our requirements for safety; not the fact that it is a private dwelling-house, a saloon at an inn, a schoolroom, or a Board room.

(To be continued.)



TAKEN FROM THE CONTRACTOR'S
WORKING DRAWINGS
EDWIN O. SACHS ARCHT. DEL.

TRANVERSE SECTION, SHOWING STALLS AND VELUM.

GREAT ART WORKERS OF THE CENTURIES.

GRINLING GIBBONS—ARTIST WOOD CARVER.

THE art of producing and the desire to possess representations of natural objects executed in relief or in the "round," as it is technically termed, appears to be innate in the human race; it is an even stronger faculty than that of linear design. To find an uninstructed child with a natural ability and taste for drawing is comparatively rare, but almost any child would be capable of modelling rude little figures in clay, and pleased to do so. Of course, from the very beginnings of rude glyptic Art, wood has been a favourite material for figure-carving. Stone suitable for sculpture is not to be found everywhere. It is, moreover, difficult to cut, and requires keen and peculiar tools for its manipulation. But any shepherd boy or country lad can attempt with his much cherished jack-knife to carve the root of the blackthorn stick, upturned from the hedge-row, with the head of a dog, a horse, or a man. Just in the same way did the primitive homo of four or five thousand years ago cover his war club or the paddle of his canoe with elegant ornamentation carved with a bit of flint, and just so does the Polynesian savage of to-day decorate his weapons and his tools. Many of the wood carvings of the primitive cave-dwellers have been dredged up from the bottom of the Constance and other Swiss lakes, and may be found in museums, together with plenty of specimens of savage Art of the present day, and the similarity of the style of ornament—often very tasteful and elaborate—is astonishing. Very little use was made of wood as a material for carving during the early historical period. Some few wooden images of very early Egyptian work are extant, it is true, but they partake more of the nature of dolls and lay figures than veritable wood sculptures. Nothing of the kind is found among the Assyrians. Amongst the Greeks, as we know, their greatest sculptor Pheidias appears to have employed wood for what may be termed the skeleton of his grand chryselephantine statue of the Olympian Zeus. That is to say, the figure was formed of gold and ivory upon a substructure of timber, but this was certainly not to be classified as wood carving. Ordinarily all Greek sculpture was of stone, as may also be predicated of

ROMAN STATUARY.

except when occasionally the latter nation resorted to metal foundings. But with the rise of Gothic Art wood became a very favourite material with the carver. It is perhaps fancifully conjectured that the beautiful Gothic arch was derived from the idea of the meeting and overarching arcades of tall forest trees, conceived by architects sprung from those Northern races who had ever been forest dwellers. Certain it is that the great Teutonic and Scandinavian races from which we English have sprung have always admired timber as a building material, as the magnificently wrought roofs, screens, and stalls of many an English, French and German cathedral and church can testify. It was part of the firm faith of the ancient Gothic builders, many of them pious clerics, that all materials were the gifts of the beneficent Creator, and could, by human skill and labour, be turned to the glory of God and the gratification and pleasure of his Church. Hence stone, wood, and iron were alike turned to enduring forms of beauty, by men who veritably appeared, both in a religious and an artistic sense, to be inspired. The Renaissance brought to the fore

A NEW SCHOOL IN ART.

Architecture, and decoration. It revived the old Classic, and hence Pagan Art, and was, therefore, far less distinctively religious than the Gothic school, but nevertheless it did good and useful work in its day and generation. Gibbons, the subject of this brief sketch, must be fairly considered as a disciple of this school. Grinling Gibbons was born in London about the middle of the seventeenth century, and was descended from a Dutch family which settled in England at that period. The ex-

quisite taste which he exhibited in his carved work attracted the attention of wealthy patrons of Art, and he was made a member of the Board of Works during the reigns of Charles II. and James II. He excelled in carving flowers and foliage, and he executed many subjects of this kind with so much delicacy that the effect was perfectly astonishing; so delicate was some of his work that the very leaves and tendrils quivered from the footsteps of persons passing along apartments in which these delicate carvings have been placed. In the library of St. Paul's Cathedral there is some good Grinling Gibbons work, and in Whitehall Gardens is a statue of King James habited as a Roman warrior, also by the subject of this sketch. Horace Walpole says: "There is no instance of a man before Gibbons who gave to wood the loose and airy lightness of flowers, and chained together the various productions of the elements with a free disorder natural to each species." "So delicate was his workmanship," says the same writer, "that Gibbons carved a pot of flowers which shook in the room from the motion of the coaches passing in the street." Later on in life, when Gibbons' fame rested on his productions as an architectural wood carver and not upon furniture decorative work, his style became much more elaborate and delicate. All his designs follow the style of the Italian Renaissance, and some of his carvings recalls the Brothers Adams in their architectural decorative work.

LIVERPOOL DOCK EXTENSION.

THE important scheme of dock extension at Liverpool, with which rumour has been busy for some days, was formally submitted at the last meeting of the Mersey Docks and Harbour Board. The Works Committee, with a view to providing increased accommodation for vessels of the largest class, and bearing in mind the tendency of vessels to increase in dimensions, recommended for approval a scheme of the engineer which will involve an estimated expenditure of £316,000. It also recommends that borrowing powers be sought for defraying the cost of these projected works, in addition to £817,000 for works authorised by the Act of 1891, and £300,000 for the construction of the new tobacco warehouses at the Stanley dock. The total sum required will be £4,433,000. At the south end it is proposed to construct four branch docks; two on the west side of the Queen's and two on the west side of the Wapping docks, flanked with double-story sheds, and to deepen and widen those docks and the connecting passages. There is to be a 630ft. graving dock on the site of the present Queen's half-tide dock, and a 620ft. graving dock on the site of present Brunswick graving dock. The Coburg, Brunswick, and Union docks are to be deepened and otherwise brought up to present requirements. The improvements at the north end include the construction of a branch dock on part of the site of the Sandon graving docks, flanked with double-story sheds. There is to be a graving dock, 1000ft. long and 90ft. wide, near the Huskisson dock. Part of the Sandon dock is to be converted into a deep branch dock, and the Huskisson branch docks Nos. 1 and 2 are to be improved and deepened.—Mr. J. W. Hughes, chairman of the Works Committee, in moving that the recommendations here epitomized be deferred till next week in accordance with standing orders, said that some members considered they were not going far enough, while others thought they were going too far. In his opinion they had hit upon the happy mean. The outcome of the scheme was that provision would be made for a very large number of vessels of 800ft. long, for a number of vessels over 900ft. long, and, roughly, about 250,000 square yards of shed floor. It also provided three excellent new graving docks, and a new entrance was made into the southern system.—Mr. Hughes pointed out that the south-end docks to be modernised were within a mile of Liverpool Exchange.—The motion was adopted.—The south-end docks, which are to be brought up to date, were constructed from 80 to 100 years ago,

Professional Items.

DUMFRIES.—A stately church which has been erected within the grounds of the Crich-ton Royal Institution, was opened recently. The church has been eight years in building. The design is by Mr. Sydney Mitchell, Edinburgh. It is a noble example of Gothic Architecture, and is one of the finest modern ecclesiastical buildings to be found in Scotland. The design is cruciform. The building stands almost due east and west, and extends to a total length of fully 200ft. The west doorway is deeply recessed and richly carved, and the door is of hand-wrought iron work. A porch encloses the entrance stair, which leads to a height of 11ft., that being the level of the church floor; and within the porch are two rows of columns, with carved capitals, from which spring numerous moulded ribs intersecting in all directions, and forming a series of pointed arched vaults of various heights and widths. The church is entered from the stair landing, through another doorway with richly-sculptured foliage ornament. The nave is divided from the aisles by rows of columns, from which spring pointed stone arches, and these carry the masonry of the clerestory. The choir is 28ft. square, the openings terminating in pointed arches rising to a height of 50ft., and here are four massive piers forming the sub-structure of the square centre tower, which rises to a height of 123ft. The ceiling is of oak, formed into a series of panels decorated throughout with high relief carving, and has a deep carved running foliage cornice. The ceiling height from the floor to the crown of the roof circle is almost 60ft. in the nave and 65ft. in the choir. The floor is constructed of white paranazzo, inlaid with Irish red, green, and black marbles, in a bold and effective design. The communion table occupies the eastern extremity of the chancel, in which also are stalls for the choir. These and the pulpit and the screen of the organ chamber are of carved oak. At the eastern end of the church is a crypt or mortuary chapel, which, also, is a very fine piece of Architecture. The elegance of proportion and beauty of detail are striking characteristics of the whole building.

DURHAM.—An interesting ceremony took place at the Castle, Castle Eden, when Mr. W. R. Simpson, who had acted as clerk of the works on the restoration of the Castle, under Messrs. Hicks and Charlewood, architects, Newcastle-on-Tyne, received from Mr. Rowland Burdon, the owner, a beautiful silver casket as a mark of appreciation of his ability and integrity.

FLOCKBURGH.—The new Parish Church of Flockburgh, which is being erected in the Early English style, will, when completed, consist of a nave 62ft. long by 22ft. 10in. wide, at the western end of which will be a massive tower 26ft. 6in. by 25ft. externally, and 53ft. high to the top of the parapet. On the north and south sides will be arcades of four arches—three in the nave and one in the chancel, which is also divided from the nave by an arch 26ft. high. The north aisle roof will be continuous the whole length of the arcade, but on the south will be interrupted by the organ transept, whose gable will project slightly beyond the line of the aisle. The height to apex of nave roof will be 39ft., the chancel being about 18ft. lower. At the eastern end of the chancel will be an apse with stone groined roof, lit by three lancet windows. Advantage has been taken of the sloping nature of the site to form the vestry under the apse at the east, and equal to 20ft. by 17ft. in area. The heating apparatus is also contrived under the organ chamber. Access is obtained to these places from the outside by a door in the east wall, entered on the level, and from the church by a stone staircase east of the organ. The church itself is entered by north and south doors and in the tower at the west end. The nave will have a clear story of six lancet windows each side, and the chancel two quatrefoil, and one long lancet window. The west

window will be a double lancet. The church is built with walling of local stone, obtained from Mr. Cavendish's quarries at the bottom end of Holker Park, and with dressings of Prudham stone in broken course worked inside and outside, except in interior of the apse, which will be faced with ashlar. The roofs of tower, chancel, and nave and organ transept will be covered with stone slates, and the aisles and apse with lead. The roofs and nave seats will be of pitchpine, and the floors under nave and aisle seats will be laid with oak blocks, the choir stalls being also of oak. The aisles and passages will be flagged and the chancel floor lain with encaustic tiles. The work is being carried on by the following contractors:—Masonry, Mr. Anthony Blair, of Allithwaite; carpentry, Messrs. Gradwell and Co., of Barrow; slating, Mr. Chippendale, of Grange; plumbing and glazing, Mr. A. Moorhouse, of Kirkby Lonsdale. Messrs. Austin and Paley, of Lancaster, are the architects.

GLASGOW.—The police and fire station at Strathbungo was last week inspected by over sixty high-school students, who were conducted over the building by Mr. Sharpe. The fire station enters off Addison Street, and, in addition to the latest requirements, contains a prominent tower, 50ft. high, with a stove at the foot for drying hose. A complete lighting department, with a muster hall for fifty men, enters off Prince Edward Street. The police department enters off Craigie Street. Cells are provided for fifty prisoners. The police-court is well-planned, having separate entrances for magistrates and counsel, witnesses, prisoners, and the public. The cost of the buildings is £17,000. Mr. A. B. McDonald, Kelvinbridge, Glasgow, is the architect.

HORHAM.—Horham Hall, the place which Mr. Allen Upward, with a literary friend, has just secured as a country residence, is one of the few historical mansions of England which are still inhabited. Originally built at the end of the War of the Roses, on the site of an older castle, it was added to afterwards in order to serve as a residence for the Princess Elizabeth. The tower was built at the same time; it contains windows commanding all points of the compass, and at the summit there is a secret peephole, overlooking the London Road. Out of the kitchens of Horham ran an underground passage, now much choked up, for five miles.

ILKLEY.—The sub-committee appointed by the Ilkley District Council to select a site for the erection of town's offices has unanimously decided to recommend the adoption of a larger scheme—viz., the utilisation of what is known as the Sedburgh Estate, not only for public offices, but for a large hall capable of accommodating from 1300 to 1500 people. At the same time accommodation would be afforded for a free library and for the museum. The land, costing over £6000, has already been acquired. The proposal also provides for the erection of several lock-up shops in the front of the building, which, roughly speaking, is estimated to cost £10,000, exclusive of furniture.

MILLWALL, E.—The dedication stone of the church of St. Cuthbert's, Millwall, to which will be added a club and schoolrooms, was laid a few days ago. The church of St. Cuthbert, which was formed during the present year, is within the parish of Christ Church, Poplar. The site for the new buildings has been given by Lady Charteris, while about £3000 in all has been derived from other sources.

RISLEY.—During the past fifteen months a series of improvements have been effected in the parish church at Risley. The church itself was originally built, probably as a private chapel for the Hall, in 1593, and was consecrated forty years later. It then consisted of a small nave, with a chancel separated by an oak screen, apparently older than the building itself, and with a gallery at the west end. In 1845 the building was enlarged by the addition of a north aisle, equal in size to the nave, and the gallery was removed, and the whole fitted

with high pews of painted deal. The first of the recent alterations was the erection of a spacious vestry. Then the chancel was entirely refitted, and the old seats, which were much dilapidated, were replaced by beautifully carved oak benches. A carved oak altar took the place of the old deal one, and this has been completely fitted with brass furniture and oak altar rails. The old oak framework of the screen has been divested of its coats of paint and left intact, but the more modern panels of painted deal, which blocked any view of the interior have been removed and replaced by very light tracery of oak. Elaborately carved cresting has been placed on the top, surmounted by a plain oak cross. Next an organ chamber was built at the west end of the north aisle. The next renovation consisted in the whole of the roof being panelled internally with varnished pine, and the chancel walls and roof decorated by Messrs. Powell, of Lincoln. The walls of the church were thoroughly cleaned, and the church fitted throughout with electric light, supplied from the station at Risley Hall, while in the churchyard all the walks were paved and kerbed with Hopton Wood stone. A new pulpit of carved oak has been added, as well as a costly brass eagle lectern from the works of Messrs. Hardman and Powell. Externally the walls and roof have been thoroughly repaired, and efficient drainage has been provided. The whole cost of the work is less than £2000. The architects, under whose supervision the work has been carried out, were Messrs. Evans and Son, and the contractors, Messrs. Hodson and Son, while the pulpit and more elaborate carving has been executed by Mr. W. I. Beckett, all of Nottingham.

ST. BLAZEY.—The parish church has just been re-opened after restoration. The church, a very ancient and comparatively small granite structure, having fallen greatly into decay, its supporters embarked upon an extensive scheme of restoration, which has just been completed. In certain respects the appearance of the interior has been brought into line with modern ideas, particularly by the removal of the high pews. The estimated expenditure is about £900. Mr. E. Sedding, of Plymouth, was the architect; Messrs. Hobbs and Bartlett, of Callington, have carried out the work.

THORNTON.—During the present year the organ builder has been much in evidence at Thornton, no fewer than three places of worship having been supplied with new instruments. In the early part of the year the Brontë Memorial Organ was fixed in St. James's Parish Church, on Saturday last the opening ceremony in connection with a new organ at Egypt United Methodist Free Church took place, and at Kipping Independent Chapel a new organ is just on the point of completion, and will be opened shortly.

A GREAT deal of very strong feeling has been aroused in Manchester by the proposal of the Art Gallery Committee to abandon the annual autumn exhibitions there in favour of occasional shows, arranged simply as adjuncts to the permanent collection. Local Art opinion seems entirely opposed to this suggested change of policy; and certainly there is little to be said in defence of a scheme which will put the city entirely out of touch with modern Art developments, and make it of no account among the great provincial Art centres. A fine, permanent collection has, it is true, been brought together by the Corporation; but the judgment with which purchases have been made in the past is, beyond doubt, a result of the stimulus provided by yearly exhibitions of the best modern work. What will be the future of the municipal gallery it will be hard to say, if these reminders of outside progress are dispensed with, and the responsibility of adding to the city Art treasures is laid upon the men who have neither the courage to support Mr. Walter Crane in his reform of the Art School nor the common sense to recognise the part that is played in industrial life by the Art of the moment.

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

POLISHING PITCH-PINE FLOORS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—If any one has had any experience in polishing pitch-pine floors, I shall be very glad of their advice in treating a 3in. secret-nailed pitch-pine floor, scraped surface,—with the method of preparing and executing polishing, and the component parts of same.—Yours truly,

POLISHER.

As the floor is scraped, next paper it with $1\frac{1}{2}$ glass paper, with the grain finishing circular. Then clean off with turps, and rub in filling composed of finest plaster-of-paris, yellow ochre to tint, mixed with warm water and a little linseed oil (raw). Clean off the filling, let dry, re-paper, and then apply ordinary yellow French polish in portions about 6ft. square. A good wax polish is made thus:—Yellow wax, 20 parts; yellow ozocerite, 20 parts; linseed oil (boiled), 1 part; turpentine, 25 parts; raw sienna, 5 parts. Mix the two waxes over a slow fire, add the colouring previously mixed with the oil, when cold add the turpentine, this will make it the consistency of cream, apply with flannel rubber and polish with felt.

PUBLIC APPOINTMENTS.

MR. S. S. PLATT, Borough Surveyor, Rochdale, writes:—Permit me to supplement the reply given to "Doric" by the information that the Incorporated Association of Municipal Engineers hold examinations for candidates for certificates of competency in municipal engineering, &c., generally twice a year. Full information can be obtained from the secretary, Mr. T. Cole, 11, Victoria Street, Westminster, S.W.

THE WINTER SESSION.

MODELLING IN RELATION TO SCULPTURE.

THE usual monthly meeting of the Glasgow Architectural Association was held on Tuesday week. The lecturer began by characterising modelling as the beginning of all things, for by it the ideas were gradually developed in a tangible form changeable at will. The model in clay or other plastic material was a necessity for anything of importance to be executed in relief, representing work as it would appear when finished, and had been employed for such different subjects as statuary, silversmiths' work, and even a cake of chocolate. The essayist then touched on the many points of connection between the model and the replica in the different materials, finishing up with a selection of lantern views of models and the work executed therefrom.

HALF TIMBER WORK.

The eleventh meeting of the session of the Edinburgh Architectural Society was held on the 20th inst. Mr. W. A. Mellon read a paper entitled "Half Timber Work." Mr. Mellon gave a historical description of characteristic examples of the style, both Gothic and Renaissance, and then gave a short comparison between British and Continental work, and concluded by stating how far, in his opinion, half timber work was applicable to present-day building in Scotland. Mr. Mellon's paper, with the illustrations, will shortly be published in the BUILDERS' JOURNAL.

Trade and Craft.

A NEW PAVING IN LONDON.

Some interesting experiments with a novel species of paving material are being made in London just now, which might be watched with advantage by our Highways Committee. The paving material is a particular kind of bitumen, mixed with hard stone broken into small pieces. The mixture is pressed by powerful machinery into blocks the size of the ordinary wood blocks used for paving. These are simply laid down close together, and the weight of the traffic soon closes up the interstices between the blocks, and welds the whole pavement into a solid mass. Several advantages are claimed for this kind of paving. It is said that the blocks are absolutely non-absorbent, and thus the unpleasant smell which sometimes arises from wood paving is conspicuous by its absence. It is also said that this new paving never wears slippery as granite does. The bitumen in the blocks wears a little faster than the stone; and thus there is always a slightly roughened surface to afford a secure foothold for horses. The price is about the same as laying a street with Jarrah wood, and the new paving is said to last much longer, and to be quite as noiseless. If the London trials of this material prove successful, it might be worth while to experiment in Sheffield. There are streets where it is admitted that wood is out of the question; and something ought to be done, if possible, to save the inhabitants of these streets from such an infliction as ear-splitting granite.

IMPORTANT DECISION AFFECTING CARMEN, BUILDERS, AND BUILDERS' MERCHANTS.

At the City of London Court, on the 13th inst., Messrs. John Smither and Son, Ltd., carmen, of 6, Russia Court, Milk Street, brought an action against Messrs. Henry Conolly and Co., builders' merchants, of 42, Hampstead Road, to recover the sum of 10s. for detention of van.—The plaintiffs' representative contended that delivery of the goods was complete when the van arrived at the defendants' door, and that the contract there terminated with the consignors, and a new contract entered into with the consignees by the fact of the van waiting to be unloaded, and that the claim was based on the detention of the van from 8.30 to 4 p.m. on June 16, 1897, when, according to the plaintiffs' version, three-and-a-half hours was a reasonable time to allow for unloading.—The defendants' representative (Mr. Rainford) declined to admit that the time of detention was as stated by the plaintiffs, and if there was any detention it arose from circumstances over which they had no control, and denied their liability. He contended that there was no contract existing between the plaintiffs and defendants. The goods were brought by the defendants from a firm in Scotland, and were delivered partly by rail, sea, and road, the senders paying all charges, therefore the carriers became the servants of the consignors, and were not the servants of the consignees, consequently no contract existed between the plaintiffs and defendants, and that the plaintiffs must be non-suited.—His Honour gave judgment for the defendants, with costs against the plaintiffs, on the ground of no contract, and that the carriers were bound to unload their own van at the defendants' warehouse door. It was not the duty of the consignees to unload the plaintiffs' van.

ALLEGED BUILDING IRREGULARITIES.

At the West London Police Court probably the largest number of summonses ever taken out against one man were heard by Mr. Rose at the instance of the London County Council, who issued 104 for irregularities under the Building Act. The builder was Joseph Wilson, who had erected nine houses in Steppendale Road and twelve houses in Trunmead Road, on the Wandsworth Bridge Road estate.—The evidence went to show that soft bricks had been used in the internal walls instead of good sound hard bricks, the mortar and bonding not being in accordance with the bye-laws, and

dirt instead of grit mixed with the lime.—Mr. Glen read a letter addressed by the district surveyor to the County Council, expressing an opinion that "placed bricks" were preferable to hard stocks in houses of two stories, because the latter had more resonant qualities.—After hearing one expert witness, Mr. Rose adjourned the summonses.

THE COCKLAW QUARRY CO.

The Cocklaw Quarry Co. intimates that it has obtained a lease of the Blackpasture Quarry, near Chollerford Station, Northumberland, on the North British Railway, and, to facilitate transit, formed a connection from the Quarry to the main line. The stone is a cream-coloured sandstone, fine grained, and of notable weathering qualities. Dr. J. Collingwood Bruce, in his "Handbook to the Roman Wall," refers to the Quarry as follows:—"The stone is a close-grained sandstone, and may be obtained in blocks of any size. The storms of centuries have little or no effect upon it. . . . Next we come to the most remarkable feature on the whole line of the wall, the remains of the bridge over the North Tyne. . . . The stone is from the Blackpasture Quarry, already referred to. . . . The peculiar feathered tooling of the facing stones will be noticed. . . . There have been three water piers. It has been ascertained, by partial excavation, that one of them lies immediately under the eastern bank of the river. Two others are, when the water is low and placid, to be seen in the bed of the stream. Blocks of masonry, which have resisted the roll of this impetuous river for more than seventeen centuries, are a sight worth seeing, even at the expense of being immersed in cold water to the full extent of the lower extremities. That end of the piers which is directed towards the stream is pointed. The *luis* holes remain in the stones. The grooves formed for the iron rods and cramps can also be discerned."

WHAT IS A FLUE?

For a considerable time at a recent sitting the Judge, Mr. Lumley Smith, Q.C., in the Westminster County Court, discussed the question, "What is a flue?" An agreement was entered into between the owner of an old house at Woolwich with a neighbour whereby the latter was to carry up the flue. This had been done by zinc "tallboys," and it was alleged by the plaintiff that she (Mrs. Moulton) was entitled to brick chimneys, as the original ones were brick.—His Honour asked the first surveyor: Is flue a technical or a popular word?—The Surveyor: I should say a popular one, but a flue is of brick.—The second surveyor agreed that a flue was of brick.—His Honour desired some authority for it.—Mr. Arnold White, the defendant's counsel, said the dictionary put it as a channel for smoke.—The Witness: The Building Act says it must be 4in. brickwork.—His Honour: So the Legislature has taken flue in hand. It's a sweeps' word, isn't it?—For the defence it was argued that the word chimneys, and not flues, would imply brick.—His Honour gave judgment for the plaintiff for £26 5s., as damages for breach of contract.

"THROUGH CHINA WITH A CAMERA" is the title of Mr. John Thomson's book which Messrs. Constable are presently to publish. It is to contain a hundred large size illustrations, forming perhaps the finest series of pictures of Chinese life and scenery ever brought into this country.

NOTICE TO PROVINCIAL READERS.

The Editor of the "Builders' Journal" will at all times be pleased to receive and consider articles of a professional or technical character suitable for these pages. Papers read before Architectural bodies will also, if forwarded, receive careful consideration.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN—For supplying and erecting a monument at Duthie Park, for the Town Council. Mr. J. Rust, City architect, Aberdeen.—
James Wright & Sons 2789 0 James Macintosh 2489 0
Wm. Gorstin & Sons 700 0 Archibald A. Brown 425 0
Alex. Macdonald and Co., Ltd. 589 10 Arthur Taylor, Aberdeen *Accepted 415 0

AYLESBURY—For the erection of three shops and residences in Cambridge-street, for Mr. H. J. Goodey Messrs. W. F. Taylor and Son, architects, Aylesbury. Quantities by architects:—
G. H. Gibson 21,550 Webster and Cannon. 21,438
J. Holland 1,480 Aylesbury *Accepted.
Mayne and Son 1,475

BILLERICAY—For the construction of stoneware and iron pipe sewers, with manholes, &c., for the Rural District Council. Messrs. Jones, engineers to Council, 25, Parliament-street, Westminster, S.W.—
W. H. Saunders and Co., Southampton 24,899

BOLTON—For the erection of a new Inland Revenue office, for the Commissioners of H.M. Office of Works. Quantities by Mr. Allan Paul, 6, Quality-court, Chancery-lane:—
E. and W. Maginnis 24,123 R. Paiton 23,489
R. Neill and Sons 3,782

BROMLEY (Kent)—For the erection of fire brigade station and stables, West-street, Bromley, for the Urban District Council. Mr. Stanley Hawkins, surveyor.—
H. Chapman 21,012 8 3 F. P. Duthoit 2855 0 0
General Builders, T. D. Grady, Bromley *Accepted.
Ltd. 1,100 0 0
W. Irwin 987 0 0

CARDIFF—For kerbing, channelling, paving, and metallising Gleston and Pontcanna-roads, and for other works, on the Poncanna Estate, for Mr. W. S. Powell. Mr. C. Jones, architect, 8, Queen-street, Cardiff.—
Williams & Thomas 2995 18 0 Barnes, Chaplain, W. Thomas and Co. 950 0 0 and Co. 2864 13 8
James Wood 923 19 11 W. Rich 811 18 11
Frank Ashley 923 4 6 Thomas Rees, Eley, Cardiff *Accepted. 805 0

CHISWICK—For the making-up of roads, for the Urban District Council. Mr. A. Ramsden, Surveyor to the Council, Vestry Hall, Chiswick.—
Hiram Morecroft 24,182 0 0 M. N. Rhodes, B. Nowell & Co. 3,695 5 5 Thornton, Sydney Hudson 3,167 19 9 avenue Chiswick (accepted) 22,508 0 0

CROYDON—For alterations, and providing 408 additional places to boys' and girls' departments and new cookery and laundry room at the Board Schools, Morland-road, Woodside, for the Croydon School Board. Mr. Robert Ridge, architect, 12, Katherine-street, Croydon. Quantities by Mr. Mansfield Price, Cedar-road, Sutton:—
J. Smith and Sons 23,127 G. E. Bryan and Son 22,992
J. and C. Bowyer 3,085 A. Bullock 2,973
W. Akers and Co. 3,039 E. P. Bulled and Co. 2,960
E. J. Saunders 3,020 Huntley Brothers *Accepted. [All of Croydon.]

*Accepted subject to the approval of the Education Department.

DEVONPORT—For the erection of a master's residence, new boarding-house, and other works, at the High School, for Mr. Alonzo J. Rider. Mr. R. H. B. Neal, architect, Central Exchange, Plymouth. Quantities by the architect:—
J. C. Cockrell 24,550 Laphorn and Co. 23,740
Turpin 4,500 Palmer 3,650
A. N. Gales 2,975 Ambrose 2,600
J. E. Berry 3,900

EALING—For supplying and laying in various parts of the district Norwegian granite kerb and Leicestershire granite channelling, for the Urban District Council. Mr. Chas. Jones, Engineer:—
M. N. Rhodes 21,095 5 10 Laurence and Thacker 2913 3 4
H. Morecroft 1,057 0 0
B. Nowell & Co. 1,014 4 5 Bentham & Co., Wm. Wade 2,890 High-street, Ealing
Geo. Wimpey & Co. 963 2 0 Plumstead *Accepted. 894 16 6

ENFIELD—Accepted for erecting a terrace of cottages, residences, for the Freehold and Leasehold Investment Company, Ltd., 353, Goswell-road, E.C. Mr. E. C. Beaumont, architect, 78, Fleet-street, E.C. Quantities by the architect:—
Marsden and Bailey 21,750

FARNBOROUGH—Accepted for the erection of business premises, Farnborough, Hants, for Mr. C. Hammerton Mr. Stanley Parker, architect and surveyor, 427, Edgware-road, W.—
W. Smith, Farnborough 21,182

FEATHERSTONE—For the erection of nineteen houses for Mr. W. Anderson. Messrs. Garside and Keyworth architects, Pontefract:—
Jackson Bros. 22,990 0 Walker and Ward
Mollekin and Co. 2,792 6 Pontefract *Accepted. 22,709 11

FELLING—For the erection of premises, Caldwell-street for the Felling Industrial Society, Limited. Mr. J. W. Frazer, architect, 40, Grey-street, Newcastle:—
J. Reed and Co. 21,402 2 5 R. Davidson, Fell
E. and T. George 1,400 0 0 lng *Accepted. 21,252 1
G. T. Manners 1,347 0 0 T. and R. Lamb 1,274 1
Raven & Hitcham 1,385 3 0 E. M. Thompson 1,176 1

HULL—For pulling down old property and erecting warehouse in Burton and Fawcett streets, for Messrs. F. and T. Ross, Limited, Railway-street, Hull. Mr. Percy T. Runtun, architect, Scale-lane, Hull. Quantities by the architect:—
F. Southern 21,801 13 6 Lison and Son 21,682 16
E. Good and Son, Ltd. 1,797 10 0 M. Finch 1,678 13
Son, Morrill and Son 1,750 0 0 F. Bailey 1,672 0
T. Goates 1,750 0 0 T. Blackburn and Son *Accepted. 1,659 0
G. Jackson and Sons 1,725 0 0 J. Simpson and Colley and Levitt 1,718 0 0 Son 1,657 11
H. Moody 1,707 4 6 J. R. Woods 1,643 0
Hebbelwhite and Wilson 1,686 3 0 *Accepted. [All of Hull.]

LEEDS—Alterations to "St. George's Vaults," George street, Leeds. Fred Mitchell, architect, 71, Albion-street Leeds:—
Brickwork, &c.—J. H. Appleby 2105 0
Joiner—A. Braithwaite 145 0
Plumber—E. Tattersall 61 9
Plasterer—J. Moore 31 10 [All of Leeds.]

LONDON.—For rebuilding the "Royal Oak," Whiston-street, Haggerston, N., for Messrs. F. Hurdle and Co. Mr. W. M. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:

Structural.
R. E. Clarke ... £3,308 W. Smith ... £2,020
Wall and Co. ... 3,251 W. Rowe ... 2,903
Lascelles and Co. ... 3,157 Pritchard & Renwick ... 2,883
Burman and Son ... 3,141 Courtney & Fairbairn* 2,843
H. L. Holloway ... 2,993 * Accepted.

Peetering.
J. Warne and Co. ... £94 R. Heath (accepted) ... £87
R. E. Lane ... 88 H. and F. Warne ... 80
LONDON.—For billiard saloon and lounge at the "Woodman Hotel," Westow-road, Sydenham, S.E., for Mr. W. Dowling. Mr. W. M. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:

Structural.
Mr. Byrne ... £665

Fittings.
Brown and Co. ... £525

Peetering and Gasfittings.
Buckley and Beach ... £240

LONDON.—For alterations to the "Phoenix Distillery," Norton Folgate, N.E., for Messrs. Wesson and Lyon. Mr. W. M. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:

Structural.
Brown, Kruse, and Co. £4,150 Burman and Son ... £3,300
Lascelles and Co. ... 3,584 W. Rowe ... 3,226
H. Minner ... 3,336 Edwards and Medway 3,180
Ansell and Son ... 3,345 Stevens Bros. ... 3,143

Peetering.
Sanders ... £162 J. Warne and Co. ... £157
H. and F. Warne ... 159

Gasfittings.
Morris ... £20 W. Winn ... £190

LONDON.—For alterations to the "Smith's Arms," New Church-street, Bermondsey, S.E., for Mr. J. Pidgeon. Mr. W. M. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:

Structural.
Burman and Son ... £1,590 Courtney & Fairbairn £1,136
F. H. Hopkins ... 1,183 Edwards and Medway 1,111
C. Minner ... 1,167 Godson and Son* ... 1,110
* Accepted.

Gasfittings.
W. Winn (accepted) ... £107 9 6

Peetering.
Buckley and Beach (accepted) ... £96 0 0

LONDON.—For alterations to the "General Havelock," Parkstone-road, Peckham, S.E., for Mr. D. Wybrow. Mr.

W. M. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:

Structural.
Byrne ... £1,069 Baston ... £1,441
Wall and Co. ... 1,684 Tyreman ... 1,404
Richardson ... 1,487

Subsequent Estimate for Rebuilding.
Tyreman (accepted) ... £3,275

Fittings.
Brown and Co. ... £775

LONDON.—For addition, alteration, and decorative work to No. 10, Upper Brook-street, for Mr. Palmer Tebb. Mr. Philip Todd, architect, 27, Half Moon-street, Piccadilly, W.:

Structural.
Wall and Co. ... £2,780 Edwards and Medway £2,700
T. Hooper ... 2,775 W. Smith ... 2,685
H. Young ... 2,750 Lascelles and Co. ... 2,667
Burman and Son ... 2,749 H. L. Holloway ... 2,407
Courtney & Fairbairn 2,705

Fittings.
Antill and Co. ... £2,991 Lascelles and Co. ... £1,998
Courtney & Fairbairn 2,150

Peetering.
R. E. Lane ... £176 H. and F. Warne ... £140
H. Matthews ... 159 J. Warne and Co. ... 124

LONDON.—For alterations to the "Canon" public-house, Cannon-street, E.C., for Mr. J. H. Cross. Mr. W. M. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:

Structural.
F. H. Hopkins ... £4,780 Antill and Co. ... £4,187
Courtney & Fairbairn 4,715 Burman and Son ... 4,150
T. Hooper ... 4,610 Lascelles and Co. ... 4,034
Wall and Co. ... 4,250 H. L. Holloway* ... 3,784
Whitehead and Co. ... 4,210 * Accepted.

Fittings.
Lascelles and Co. ... £656 Brake and Aylard ... £597

LONDON.—For cleaning, painting, and repairs, at the offices of the Board of Works for Poplar, High-street, Poplar, E.:

W. Johnson ... £269 4 0 Johnson Bros. ... £793 10 0
T. H. Jackson ... 939 17 0 A. W. Derby ... 788 0 0
J. C. Jennings ... 926 18 0 Wright ... 782 12 0
G. Cordery ... 906 17 3 Vigor and Co.* ... 774 8 8
G. Whales ... 857 9 2 Gibb and Co.* ... 697 10 0
J. T. Roby ... 797 0 0 * Accepted. † Withdrawn.

LONDON.—For rebuilding the "Fitzroy Hotel" and chambers, Charlotte-street, Tottenham Court-road, W., for Mr. W. S. Dibbs. Mr. W. M. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:

Structural.
Lascelles and Co. ... £5,443 Wall and Co. ... £5,049
H. Minner ... 5,427 T. Hooper ... 5,007
Edward and Medway ... 5,233 H. L. Holloway* ... 4,762
Courtney & Fairbairn 5,169 * Accepted.

Fittings.
T. Brown and Co. (accepted) ... £637

LONDON.—For the erection of a chimney shaft, 150ft. high, in connection with a new refuse destructor at Bull Head Dock, No. 173, Rotherhithe-street, for the Vestry of Rotherhithe. Mr. Norman Scorgie, surveyor to the Vestry, Town Hall, Lower-road, S.E.:

General Builders, Ltd. ... £4,985 0 0
Hy. Knight and Son, Tottenham, N.W.* 2,428 3 0
Myles and Warner ... 2,291 3 10
* Accepted.

LONDON.—For the erection of stabling and horsekeeper's house at Turner-square, Hoxton, N., for the Hoxton Brewery Company Ltd. Mr. Chas. R. Winter, architect, 119, Finsbury-pavement, E.C.:

Lascelles and Co. ... £1,172 Jarvis and Sons, Hack-

Sparks and Sons ... 1,143 ney-road* ... £1,086
Wilkinson Bros. ... 1,094 * Accepted.

LONDON.—For making up and paving Munster-road (Section III), Fulham, for the Vestry. Mr. C. Bottrill, Surveyor to the Vestry, Town Hall, Walham Green, S.W.:

	Roadway.	York Stone.	Imperial.	Victoria.	Jones' Annealed Concrete.
G. Wimpey and Co.	£ 2,140	880	—	—	—
B. Nowell and Co.	2,237	903	—	—	—
T. Adams	2,755	—	—	—	—
E. Parry	2,270	—	—	—	—
H. J. Greenham	1,990	—	—	—	—
J. Mears	2,250	—	—	—	—
Imperial Stone Co.	—	—	611	—	—
Victoria Stone Co.	—	—	—	540	—
Jones' Annealed Concrete Co.	—	—	—	—	758

LONDON.—For rebuilding detached house, High-street, Bromley-by-Bow, E. Messrs. C. Foulsham and Herbert Riches, joint architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:

J. T. Roby ... £724 Howlett and Son ... £865
S. Salt ... 705 A. J. Sheffield ... 650
J. C. Edmunds ... 682 T. Osborn and Sons* ... 598
* Accepted.

LONDON.—For rebuilding the "Champion" public-house, 234, Goswell-road, E.C., for Mr. W. A. Goosey. Mr. A. K. Stephen, architect:

Patman and Eother-ingham ... £3,851 J. Carmichael ... £3,400
Ashby and Horner ... 3,443 H. Young ... 3,390
W. Scrivener and Co. 3,480 J. Garrett and Son* ... 3,369
* Accepted.

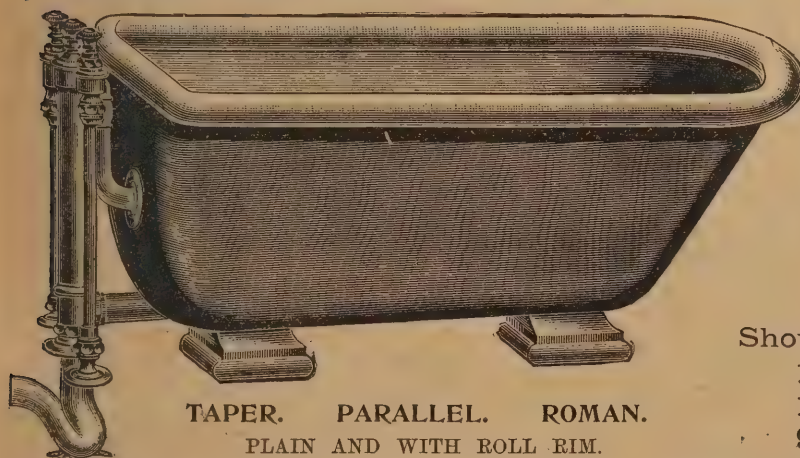
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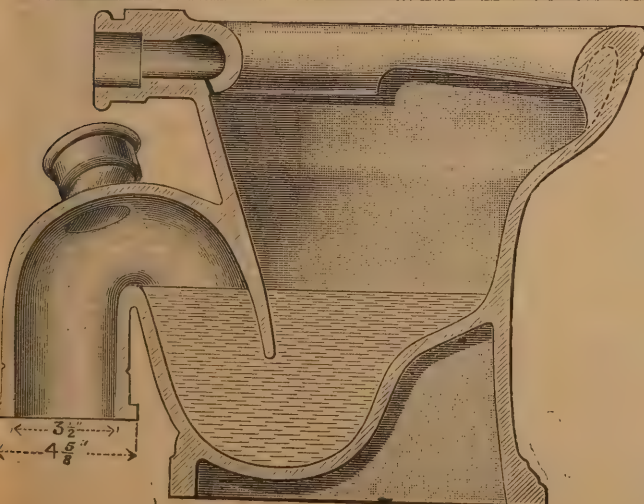
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LONDON.—For the reconstruction of sewers in Brant-
ridge-street, &c., for the Mile End Old Town Vestry. Mr.
J. M. Knight, surveyor, Vestry Hall:—
Robert Jackson £2,460 0 0 | Joseph Jackson, Forest
Killingback & Co. 2,300 0 0 | Gate (accepted) £2,128 10 6
LONDON.—For erecting a villa residence at Grass Farms
Estate, Church End, Finchley. Mr. W. Bennell, architect,
Estate office:—
W. Tout £1,760 | Coulsell Brothers, Beth-
nal Green (accepted) £1,730

LONDON.—For rebuilding premises, 23, Brushfield-street,
E.C. Mr. L. G. Hasluck, surveyor, Basinghall-street, E.C.:—
Scott £1,110 | Rayner £985
Oliver 1,023 | Coulsell Bros. (accepted) 843

LONDON.—For alterations to the "Sun" public-house,
Curzon-street, W. Mr. T. W. Moss, architect:—
Drew and Cadman £985 | Wm. Irwin* £697
Ham and Son 740 | *Accepted.

LONDON.—For alterations and fittings at the "Canteen
Tavern" public-house, Vicarage-lane, Stratford, E., for Mr.
A. Foden. Mr. Fred. A. Ashton, architect, 177, Romford-
road, Stratford, E.:—
W. Watson £923 | C. North £830
G. and H. Cocks 873 | A. E. Sykes (accepted) 790
W. G. Maddison 870

LONDON.—For the erection of new hotel, Leicester-
square, W.C., for Mr. Richard Baker. Mr. Walter Emden,
architect, 105 and 106, Strand, W.C. Quantities by Mr.
Geo. Hackford, 2, Queen Anne's-gate, Westminster:—
F. T. Chinchon £43,123 | Patman and Fother-
Hall, Bedford, and Co. 42,943 | ingtonham £42,263
T. L. Green 42,780 | Holliday and Green-
Bywater 42,750 | wood 89,907
Beer and Gash 42,495 | A. J. Bateman 39,777
H. Roffey 39,750

LONDON.—For new sewers, Haggerston District, Acton
Ward, for the Shoreditch Vestry. Mr. J. Rush Dixon,
surveyor and engineer, Town Hall, Old-street, E.C.
Quantities by surveyor:—
Wilkinson Bros. £15,610 0 0 | John Jackson £11,910 0 0
J. D. Nowell and 14,457 3 2 | Killingback and
and Sons 14,457 3 2 | Co., Camden 10,959 0 0
Pedrette and Co. 14,272 19 0 | Town* 10,959 0 0
W. Neave & Son 12,834 0 0 | Clift Ford (with-
T. Adams 12,415 11 9 | drawn) 10,629 0 0
F. A. Jackson 11,918 2 6 | E. Parry 10,290 14 5
and Son 11,918 2 6 | *Accepted.

OPENSHAW (Lancs).—For the erection of school
buildings, St. Clements, for 606 scholars, for the Trustees.
Mr. Percy D. Lodge, architect, 5, Cross-street, Manchester:
H. Fielding £3,490 | S. Robinson £2,245
J. Lawton 3,239 | Hill and Hayes, Man-
R. Whitell 2,990 | chester (accepted) 2,845
A. R. Bullivant & Sons 2,930 | W. Hurst 2,840
[Architect's estimate, £2,820.]

ST. ANDREW'S.—Accepted for widening and recon-
structing Vishwell-road, St. Andrews, for the Landaff and
Dinas Powis Rural District Council. Mr. J. Holden, sur-
veyor, Council Offices, Queen's-chamber, Cardiff:—
James Wood, Whitechurch, Glam. £134 7 4

SHEFFIELD.—For the erection of stores, stabling, etc.,
at the corner of Abbeydale-road and Arnsdale-road, for the
Ecclesall Industrial and Provident Society, Limited.

Messrs. Hall and Fenton, architects, 10, Paradise-square,
Sheffield. Quantities by the architects:—
H. Vickers £3,328 0 | T. Margerrison, jun.,
M. Grantham 3,100 0 | Church-street,
Mastin and Son 2,789 0 | Dronfield* £2,558 0
Thos. Roper 2,647 0 | *Accepted.

SOUTHAMPTON.—For the erection of a new boiler-
house and chimney shaft at the South Stoneham Union
Workhouse, Westend, for the guardians. Messrs. Mitchell,
Son, and Gutteridge, architects, 9, Portland-street, South-
ampton:—
H. Stevens and Co. £305 0 | Houghton and Small £545 10
Jenkins and Sons 587 0 | J. Nichols, South-
Hood and Rebbetts 573 11 | ampton (accepted) 490 0

STRATFORD-ON-AVON.—For the erection of new stores
in Sheep-street, for the Stratford-on-Avon Co-operative
Industrial and Provident Society Limited. Mr. C. G. Huins,
architect, Redditch. Quantities by Mr. Herbert R. Lloyd,
Birmingham:—
John Harris £1,530 0 | Callaway Bros. £1,295 0
John Roberts 1,350 0 | E. J. Kennard 989 0
Smallwood and Co. 1,330 0 | Stratford-on-Avon* 1,217 18
*Accepted.

TAUNTON.—For new laundry at Messrs. Moody's Collar
Works, Taunton. Mr. T. W. Roberts, architect, Hammet-
street, Taunton. Quantities by architect:—
S. Manning £978 0 | A. J. Spiller £971 12
F. W. Rowsell 975 0 | W. Potter 989 0
H. J. Spiller* 974 0 | *Accepted.

TONYREFAIL.—For the re-erection, additions, altera-
tions, &c., shop and house, &c. Mr. J. J. Evans, architect,
Penarth:—
M. R. Rowlands £672 0 | Lemuel Evans, £50 0
Griffiths Bros. 650 10 | Tonyrefail* 650 0
Enoch Bros. 610 0 | *Accepted.

WALTHAMSTOW (Essex).—For the erection of a new
technical workshop at the Sir George Monson School for
Boys, High-street, Walthamstow, for the Charity Trustees.
Mr. W. A. Longmore, architect and surveyor, Bridge-
chambers, Walthamstow:—
R. and E. Evans £239 0 | Reed £470 0
George Barker 505 18 | Fuller 458 0
J. English 490 0 | Barton, Waltham-
Lawrence 477 0 | stow* 415 0
*Accepted.

WEST HAM.—For rebuilding the "Steamship" public-
house, Howard's-road, Stratford, E., for Mr. G. Lee. Mr.
W. M. Bruton, architect, Trafalgar House, Green-street,
Trafalgar-square, W.C.:—

Structural.
Burman and Son £3,111 | Godson and Son £2,598
H. L. Holloway 3,086 | Pritchard & Ronwick 2,538
R. E. Clarke 3,085 | Dearing and Son 2,825
W. Smith 3,021 | Courtney and Fairbairn* 2,733
Whitehead and Co. 2,899 | *Accepted.

Fittings.
Courtney and Fairbairn (accepted) £215.

Painting.
Buckley and Beach £103 | J. Warne and Co.* £299
*Accepted.

Gazefitting.
W. Winn £193 | 6 10 | Buckley and Beach* £188 10
*Accepted.

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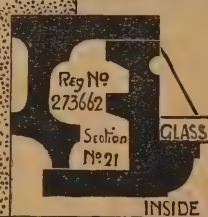
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An Architectural Causerie.

Modern Art.

So great is the wealth of ideas that are associated with sacred and secular buildings, that it is difficult indeed for the student and lover of Architecture to limit or define his appreciations. Our notions of fixity, shelter, comfort, and light, each help in a way to round and complete our conception of the various buildings we need—be they cottages, mansions, hostels, or churches. The first we

buildings enough it is true, but the drawing is seldom even tolerably careful, and the figures in the same paintings are bad as a rule. We are thinking perhaps more particularly of terrace views, of which we retain a general impression that they courted comparison with Tadema. The President's principal painting represents the interior of St. Peter's at Rome in the evening, and St. Peter's at that time of day, whether seen from within or without, is surely a glorious sight. The artist's peculiar effects of shivering golden light are familiar to all frequenters of galleries. There is as much distinction of line in this particular painting as the medium, oil, will permit, and for the rest, we can faithfully say that he has succeeded in making his representation impressive, and that he has diverted our thoughts, at least for a while, from things that are merely mundane. A companion picture to this would be an equally splendid exterior view, such as may be obtained from the Pineau gardens at sunset, and we must imagine that we have such a picture before us, as the spirit now moves us to speak in praise of the dome. They who speak slightly of it have the beautiful spire in view, but in our

citizens that it might be placed in the new Church of St. Paul's which they have set up in Rome. In width it is 30ft.; its height, perhaps, two-thirds of that. The execution of the work in mosaic has been successfully carried out, we are told, by Italians skilled in the craft, and this being so, the total effect should be splendid. There are not wanting signs that the tendency of modern thought is to prefer the more primitive forms of belief, and it will be agreed, we think, that there is an element of novelty in this design. We notice with pleasure that Christ, the victim of Hate, stands now for the Giver of Life. He no longer is nailed to the Cross as before, but is supported somehow by Igdrasil, the Tree of Life. In place of the two who died with him are Adam and Eve, right and left. The wheat-sheaf betokens labour—the fitting reward thereof; the lily, the virgin's flower—that children to her shall be born. The design altogether will appear to be healthful and beautiful. The genius of modern ecclesiastical Art has evolved a peculiar, a sexual figure of man of which it must be confessed we grow weary at times. For purely decorative purposes Fra Angelico's creatures, mere shells of the



PARIS BAZAAR FIRE. TURNSTILE NEAR SPOT WHERE THE FIRE ORIGINATED.

observe to our sorrow excludes the brave ships on the sea; but Nature provides us here with a sufficiently broad distinction, and in the contemplation of buildings attached to the soil, there is food for the busiest mind. Of the present Exhibition of the Society of British Artists we may have a few words to say, but it is considered advisable here for the writer to address his remarks to the lovers of buildings especially. It was said by the great Dr. Johnson that however fair was the prospect, it became fairer by far when a comfortable inn was in view; and his remark, we suppose, has been often repeated. The idea of a homeless life is perhaps the most depressing there is, and it would be impossible for us, by mere process of thinking, to discover the roots of our love for our buildings. If these generalisations are pardoned, it will be because the reader agrees that there are comparatively few pictures here to detain him. There are

opinion there is need of them both. In the dome is the brooding spirit of the solicitous mother of all. When the breast no longer is needed, she then sets us up on our feet, and we straight away begin building our little toy churches with spires! From whom but from her have we learned to look upwards and pray? The dome and the spire we speak of—each shelters a set of ideas, but it happens that both sets are sacred, and we say that the world would be poorer were it to be robbed of either. The dome may be proud of the spire—Hope's tribute to God—as the mother is proud of the best that her child has done. As the work of our hands must be ever imperfect, there may well be one nobler even than this bye-and-bye between us and the blue, blue sky. Of decorative designs the most important, of course, is the representation of Christ on the Cross, by Sir Edward Burne-Jones. It may not be generally known that the order for this design was given by American

soul as they are, are much to be preferred on the whole. The danger on the other side is of another more fleshly school. For the reason that architectural subjects present so many abrupt lines to the eye, we find in a general way that the pen is more usually employed than the brush by the artists who prefer these subjects to others. Already famous in our generation are Pennell, Railton, Hedley Fitton, and others—Walter New amongst younger men—but not one of them, we believe, is known as an oil painter. For architectural drawings and studies there are rooms in Burlington House, and things of this kind may be supposed to find their way there. It is idle to multiply reasons, and it may as well be said shortly that there are very few here which claim consideration as pictures of buildings. The paintings of Mr. Trevor Haddon must be excepted, however, as his records of study and travel are very delightful. E. R.

The Great London Estates.

It creates a bitterness in the heart when one sees large districts of a city like London handed over to the tender mercies of those who are absolutely ignorant of the arts that add beauty and dignity to our surroundings. It is grievous enough to see opportunity after opportunity for easily-made improvements carelessly thrown away, but when, in addition to this, the quiet dignity of old-fashioned streets is destroyed by the interpolation of some obtrusively vulgar erection, the fact comes forcibly home that some competent censor should exercise control over bodies that lack the judgment themselves. Unfortunately, the inertia of the general public in matters architectural renders remote the likelihood of such a course being taken; indeed, public bodies, though, of course, labouring under some disadvantages, fail to indicate that, on the whole, they would do any better than private owners—some of whom certainly take great pains to remodel their property on systematic lines. As a fair example of an estate on which an attempt has been made to work out a coherent scheme, we may refer to the Duke of Westminster's portion of Mayfair. Without suggesting that the buildings erected thereon are necessarily models for admiration, they seem more or less consistent in general character, and the method adopted of clearing and rebuilding whole blocks is preferable to the jumbling together of new and old, regardless of architectural effect. Other estates, that are under a more conservative régime, have the negative virtue of leaving things much as they were; till lately, the large Bloomsbury estate of the Duke of Bedford might have been placed in this category, but the management have now embarked on a more adventurous policy without possessing the capacity to carry it out; there is parsimony where there should be liberality, and extravagance where economy should rule. While the Duke of Westminster exercises discrimination as regards the architects employed, accidental or financial reasons are more potent in the case of the Bedford Estate, and, as a result, the quiet repose of Russell Square will soon be a thing of the past, and the existing houses, which are, at all events, simple and unoffending, will be tortured into all sorts of absurdities by means of terra-cotta dressings and the like. Bloomsbury Square has already suffered, though not in quite the same way, and the other squares and streets are doubtless only awaiting their turn. The other large properties might be placed somewhere between the two we have quoted, as regards the public spirit and ability possessed by their managers; but a defect inherent in the system by which a great town is portioned off in this way, shows itself in the debateable ground that lies between nearly all of them. They each seem to have regarded the adjacent district as one to be shut out at all costs, and though each may be covered with a good class of property, on the border line will be found small alleys, cul-de-sacs, &c., to which drift all the least desirable elements in the neighbourhood, where they remain to the detriment of the better classes on either side. True, "the poor we have always with us," but the poor, with decent dwellings in clean streets, is a very different body from the poor huddled into tumble-down houses up filth bestrewn alleys. It is, however, unlikely that anything short of a comprehensive scheme taken up by the authorities will abolish defects such as these, and from the architect's point there is but little even to be hoped for from them. While Shaftesbury Avenue remains as a monument to municipal taste, it will be difficult to put much faith in ameliorating influences from this quarter.

H. V. L.

Some Strange Terms used in the Building Trade.

As the building industry is one of the largest, and also one of the most ancient, it is natural that there should have crept into it the use of a large number of technical terms, and that these should have been derived from many sources. Even a casual acquaintance with them will show that while those of purely architectural meaning are largely derived from the Norman-French (evidently by way of the early monks), or have come direct from Latin and Greek, owing to the influence of Renaissance, those which deal with workmanship are almost all of purely English origin and meaning, and words in common use in ordinary life. "Breeze," for instance, has nothing to do with the wind, while "puddle" is not a pool of mud, but rather the wind itself. Children, too, might be amused to hear that a "monkey" and a "ram," a "punch" and a "dolly" are much the same thing, the two former names being given to the heavy weight which is dropped on to the top of a pile when pile-driving; the two latter to a block introduced between this weight and the pile when it is difficult to reach. Other terms which are taken from the names of animals are "sow" and "pigs," "worm" (an endless screw), and "pig's lug," which refers to a certain method of joining timber end to end; but a "dragon-tail" has nothing to do with the mythical animal, being merely a corruption of "dragging-tie"; and obvious resemblances have led to the use of the terms "bird's-mouth" and "swallow-tail." A certain number of terms, too, are named after articles of clothing, such as "pocket" (an opening in the side of a sash frame), "buckles" (fastenings for thatch), as well as the well-known "mitre" and "apron," together with "caps" and "shoes," which last are most appropriately fitted to "heads" and "feet" (of rafter struts) respectively. This brings us to, perhaps, the strangest series of all, those named after parts of the human body, almost every part being represented. There are "carcass" and "ribs," "face" and "cheeks," "elbows" and "knees," "shoulders," "noings," "back," and even "tail." "Pointing" is not done by the finger, but the mortar joints are frequently raked out with "an old woman's tooth." Another strangely named tool is the "boaster." Among the more modern trades, such as those dealing with mechanics, the same idea has been carried out, and where a word in common use has been found to apply, it has been often adapted, and in course of very few years has frequently obtained a special meaning. Examples of this are frequent, as in the case of the "clutch" and "eccentric," to name only two. It is also customary when this fails to name quite new appliances after their inventors, and a large addition to technical terms is to be found in such words as "Galvanic," "Voltaic," and "Watt," to give three common examples from those in use among electricians.

G. A. T. M.

At St. Paul's School, West Kensington, a week ago, the ceremony of unveiling in the great hall the mosaics of St. Paul and Dean Colet took place. The mosaics are placed on the apse on either side of the organ. It was originally intended in 1872 to have a recumbent figure of the Dean in St. Paul's Cathedral to replace that destroyed in the Great Fire. £2000 were wanted to complete the work, but that amount could not be raised, and the proposal was consequently abandoned and the present scheme adopted. The figure of St. Paul is on the left, and that of the Dean on the right, and the work is in rough mosaics. The total cost has been about £1200, and of that sum £400 has still to be raised.

AN OLD BERKSHIRE MANSION.

ABOUT three miles north-west of Hungerford stands one of the most perfect specimens of a Tudor house to be found in England. Littlecote is interesting in many ways apart from its architectural pretensions. The house stands in a finely wooded park, and nestles at the foot of the high downs, where the Kennet flows softly through the valley, yielding such baskets of trout as are not found everywhere; and it has the additional charm of having escaped the hand of the repairer and moderniser, having been inhabited since the Darrells built it in the last days of the fifteenth century. At the end of the great hall the Chief Justice's chair, built in a combination of triangles, still remains; and, says the *St. James's Gazette*, one of the most perfect collections of buff leather jenkins worn by the troopers of the Popham Horse, and the suit of armour worn by Colonel Alexander Popham, their leader, decorate its walls. The Pophams of those days were sturdy Roundheads, and opposed the King most bitterly. Colonel Alexander Popham was one of the Council of State in 1650, and a member of the Protector's House of Lords. He made his peace, however, with Charles II., and the wily monarch paid him a visit at his house which had once been the stronghold of opposition to his royal father. Littlecote again played an important part in the struggle between James II. and William III. Macaulay tells us how the Commissioners met at Littlecote, and William slept in King William's Room after the meeting. On that day, after they dined at Littlecote, "a splendid assembly had been invited to meet them."

THE OLD HALL

was crowded with peers, and Generals Halifax, Burnet, Nottingham, Shrewsbury, and Oxford were among those who sat round the old table and feasted, or intrigued, or listened, or dallied with the crisis. Halifax seized the opportunity, with his dexterous diplomacy, of extracting from Burnet all he knew and thought. "How, if the King went away?" whispered Halifax. "There is nothing so much to be wished," whispered the Bishop, apprehending his meaning. The Commissioners went away without any settlement, and the King soon fled. The painted room is unusually interesting, for the walls are entirely covered by pictures said to have been painted by a Dutch officer and other prisoners who were confined at Littlecote during the Commonwealth. During the Dutch war, when Van Tromp, De Ruyter, and De Witt were met by Blake and Monk, a number of prisoners were taken by the English and sent to provincial towns. One hundred were sent to Newbury, and the mayor petitioned Parliament that the town might be paid for their keep; upon which they were at once removed to Littlecote. Many of the pictures represent scenes from "Don Quixote," and some have been painted out, being more realistic than refined. The family papers in

THE PAINTED ROOM

at Littlecote, and which have never been published, possess a value hardly to be exaggerated, and it is to be hoped that some day they may be given to the world; and the Law Library of Chief Justice Popham and his books of reference, with his marginal notes, are truly curious. The Long Gallery is a beautiful room, 110ft. long, with a most interesting collection of family pictures; and over it is the dormitory, supposed to have been the quarters of the Littlecote garrison during the Civil Wars. The chapel, which is an interesting example of the arrangement of such a structure, was undoubtedly altered during the seventeenth century. The pulpit, as in all Presbyterian places of worship, occupies the place of the altar; and may we not almost believe that from it Bishop Burnett preached to the Commissioners. The house, with its picturesqueness, has an air of sadness, and the wooded downs which rise rapidly in front of it throw their shadow across its threshold, and rob it of sunshine and light; while the still air of the autumn day speaks only of a past, and never of a future.

THE CONSTRUCTION OF FIVE FAMOUS DOMES.

By JOHN A. MARSHALL.

(Continued from page 110.)

No. II.—THE DOME OF STA. SOPHIA, CONSTANTINOPLE.

THE pendentive system of vaulting had its origin in the endeavour to adjust the rectilinear plan to the requirements of the dome, as a covering. Though any polygonal plan will lend itself, more or less readily, to the adoption of this system, the conditions indispensable to its full development exist only in the perfect square. As an illustration of this, no better instance could be cited than the Church of Sta. Sophia, where the pendentive, in its simplest, yet most complete form, is the agency for the conversion of the square plan below into a circular one above, in order to form a fitting base from which to spring the dome. (Fig. 2, Plate IV., shows how this change is effected.)

Imagine a hemisphere intersected by the vertical planes of a square on whose angles it rests, and its upper portion, from the crown level of the intersections, cut off; the result will be the formation of a circle, having a diameter equal to one side of the square, and leaving of the original hemisphere only the four triangular portions known as pendentives. The constructional nature of the pendentive is that of a corbel, by which the weight of the dome is not merely sustained, but directed to the piers.

From this it may be said that the dome of Sta. Sophia has no actual direct support; and to this fact it is, in great measure, indebted for its well-known aspect of lightness and buoyancy, in this respect offering a striking contrast to the overpowering massiveness of the Pantheon.

The general idea for this church seems to have been a Greek cross with a central dome. This idea, however, was not carried out in its integrity; for, of the four arms of the cross, those on the north and south are screened off from the central space by arcades, which support galleries and clerestory walls; only those on the east and west, which are vaulted by semi-domes of nearly the same span as the central dome, being comprised in the body of the church. Opening out from these latter are smaller extensions, or exedrae, the aggregate presenting an unobstructed area exceeding 24,500 square feet, covered by a graduated system of domical vaulting, springing from one common level of 74ft. from the floor, and rising higher and higher, until it culminates in the grand central dome.

This extensive system of vaulting is mainly dependent on eight massive piers, each occupying an area of nearly 500 square feet, and carefully constructed of large dressed blocks of hard stone. The piers for the support of the central structure rise from the angles of a square, but are so arranged as to leave openings to the main extensions of 103ft. in width, and on the north and south sides of only 74ft. The square plan of the central compartment is obtained by forming a break of 3ft. in each pier; this defines the internal angles and provides the necessary planes from which to spring the four great arches that receive the pendentives. On the east and west these arches support the dome, and are brick barrel vaults about 13ft. on the soffit and 6ft. in thickness; they are open to the large hemispherical vaults that abut against them. The corresponding arches on the north and south sides are not the real supports for the dome, but are chiefly for the purpose of giving uniformity to the pendentives. They have a width of 3ft. on the soffit, which agrees with the break in the piers (Fig. 3).

The demand for increased strength on these sides, arising from the absence of semi-domes, has been met (1) by limiting the span of the supporting arches; (2) by giving them a depth

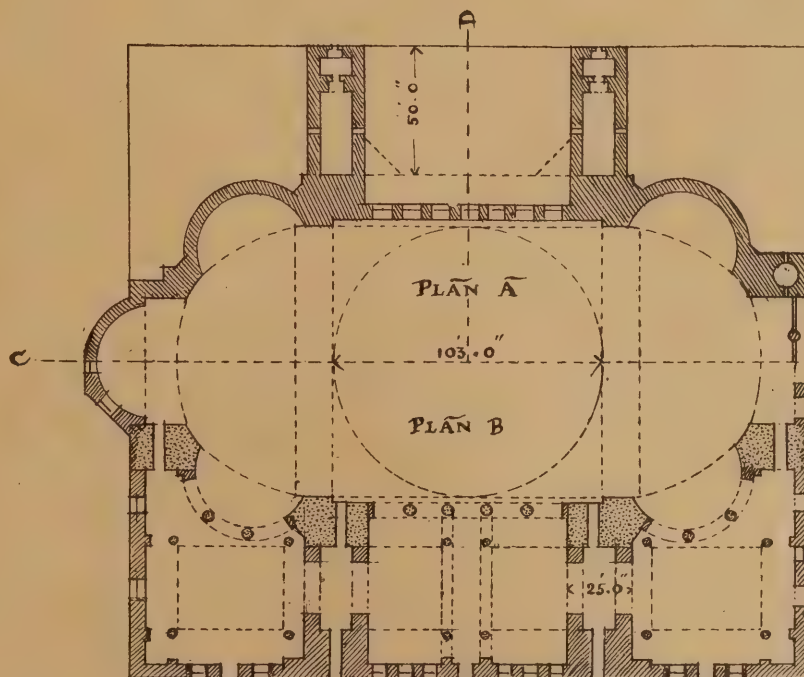
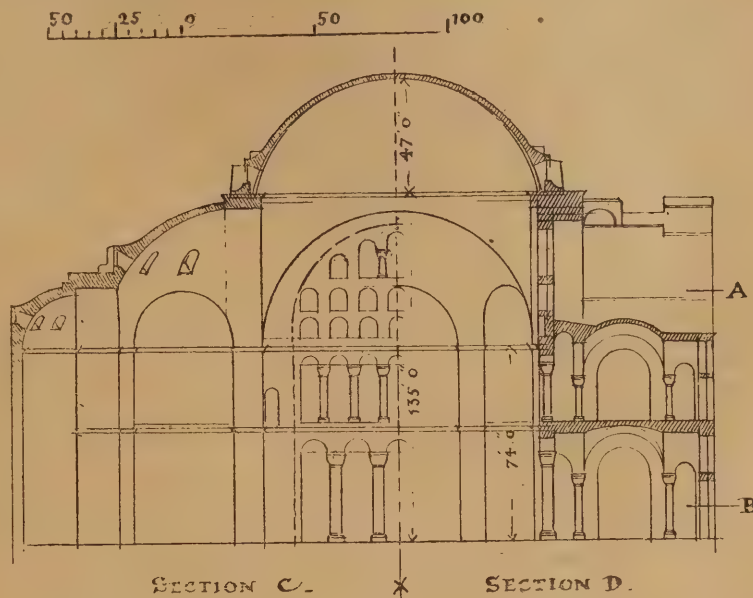
of nearly 16ft.; (3) by forming the curve for a considerable height from the springing with horizontal courses, thus still further reducing their span; and (4) by filling them in from the springing line, with clerestory walls, 4ft. thick, resting on the arcades.

It should be mentioned that these walls are flush with the inner face of the support-

The circle developed by the pendentives is at the height of 135ft. from the floor, and has a diameter of 103ft. On the top is laid a wide course of stone, with a projecting cornice; this gives a firm and even bed for the dome, the inner face of which is set back from the edge of the circle about 2ft.; by this arrangement the pendentives are somewhat relieved, and a

PLATE III

STĀ SOPHIĀ - CONSTANTINOPLE -



ing vaults, thereby concealing the awkward line of the arches inside, and leaving about 12ft. of the soffit exposed on the outside; but Messrs. Lethaby and Swainson, in their fascinating account of the building, have ventured the plausible hypothesis, that the enclosing wall was originally placed further back, on the plane of the outer face of the vaults, whereby a gallery would be left inside the church. This may have been so, yet, granting the waste of space lamented by M. Choisy, we can hardly regret it, in view of the peculiar charm afforded by the restraining character of the enclosing walls, in relation to the never-ending wonder of the vaulting.

gallery is provided, "on which the man who cared for the sacred lights could walk fearlessly, and trim each in turn."

The primary motive to the selection, for the dome, of a segmental, rather than a semi-circular section, was probably the desire to limit its weight. But, in addition to this, by springing the dome more gradually from the pendentives, the pleasing effect of the interior is, no doubt, improved. The internal diameter is 107ft., and the clear height from the springing 47ft.

Resting on the circular bed of stone before mentioned, are forty piers, 9ft. 6in. deep, and 3ft. 6in. wide, spaced regularly all round the

circumference. The intermediate spaces are arched over, at the height of about 16ft., to receive the remaining portion of the dome, the shell of which is gradually reduced in thickness to 2ft. at the crown.

The brilliant idea of piercing through the abutment, while virtually maintaining its continuity, and thus providing a range of windows at the base, appears in Sta. Sophia, not only fully developed, but as the earliest known instance of its kind; and though lacking the simple grandeur of the solitary eye of the Pantheon, yet, as a method of lighting, it is decidedly superior; it must also contribute in no small degree to that appearance of buoyancy for which the structure is said to be remarkable.

The ribs, with a slight projection on the inner face of the dome, in no way affect the homogeneity, to which quality may, doubtless, be attributed the extension of the fractures, by which the structure has, at various times, been imperilled.

The materials employed in the construction are well-burned bricks, 2in. thick, with mortar joints of nearly the same thickness; in the lower part of the dome the bricks are about 27in. square; at the crown they are 2ft. square. The joints do not radiate to the centre, but have a much flatter inclination, an expedient which would make it possible to carry up most of the work without continuous centering. This method was also adopted for the supporting arches. The curved face of the pendentives is corbelled over in brick, but the cavity behind is filled in with a light stalactical material, used in its natural state, without any preparation.

In turning the pendentives and the dome, it is probable that a method still practised in the East was resorted to. A pole, equal in length to the radius of the proposed hemisphere, is so attached to a central post that it can be swung in any direction, and thus made to describe the curves at every course of their height. The whole of the exterior of the dome is covered with lead, which serves as an effectual protection to the magnificent mosaic of the interior.

It is worthy of note, that generally, throughout the building, the supporting arches are merged, as much as possible, into the vaulting by forming a skewback all round the arch, either close to the soffit, or only a few inches above it, as in the pendentives of the dome, and the external angles are always rounded, to turn the tesserae of the mosaic. In this way all harsh lines are obliterated, the vast expanse appearing to be covered with a continuous, yet undulating, tissue of gold.

It must be obvious that, in a pendentive dome, a matter of the first importance is the limitation of its weight, and toward this end every available expedient, short of the omission of the crown, seems to have been resorted to in Sta. Sophia; the segmental form, the tenuity of the shell, the method of lighting, even the material employed, all contribute to that object. Still, the fact remains unaffected, that the stability of a dome elevated on pendentives and arches of wide span, can be effectually secured only by an extensive system of abutment applied to the substructure.

In the Pantheon the supporting wall has mass sufficient to withstand both the vertical and the horizontal pressure. But the Byzantine builders, wholly dispensing with walls under the dome, and extending the building on all sides, left only the four piers to sustain the vertical pressure; while for resistance to the horizontal thrust, they relied on the walls and vaulting of the surrounding buildings. Thus in Sta. Sophia the thrust of the immense arches on the north and south is fully withstood by the semi-domical extensions; while, to meet the enormous thrust of those on the east and west, huge buttresses are raised against the piers, whence they extend across the aisles and galleries to the outermost walls of the building, a distance of 50ft. These seeming obstructions, which are carried up their full projection nearly to the level of the platform surrounding the dome, are built hollow, and pierced with wide, vaulted openings on the level of each floor; thus preserving the continuity of the aisles and galleries.

M. Choisy has shown that these buttresses, and the square platform now surrounding the dome, were at one time much lower on the north and south, so that the curve of the dome protruded beyond the platform, and the extrados of the supporting arches was exposed. The buttresses and filling in over the arches were raised to the present level to render the abutment more nearly equal to that on the east and west. (Fig. 4.) Had the idea of the Greek cross been carried out in its entirety, and semi-domes raised on all the four sides, the statical properties of the structure would have been perfect, and all necessity for the clumsy expedients resorted to precluded. Yet, even as it is, the Church of Sta. Sophia is a remarkable instance of the skilful production, from the slenderest materials, of the grandest architectural effects, and of, perhaps, the finest combination of domical vaulting the world has ever seen.

HISTORICAL SKETCH.—The Church of Sta. Sophia was erected by the Emperor Justinian A.D. 532-7, on the site of one which had been built by Constantine the Great, and afterward destroyed by fire. The task of superintending the erection of the existing church was entrusted to two celebrated architects—Anthemius, of Tralles, in Asia Minor, and

Isidorus, of Miletus. Wishing to avert from it the fate of its predecessor, the Emperor gave instructions that the new building should, so far as possible, be rendered fireproof. But, unfortunately, it was less easy to guard against another equally serious element of danger, and twenty-two years after the dedication the eastern portion of the dome was shattered by an earthquake. It was speedily rebuilt, 25ft. being added to its height; while the buttresses, which had originally been carried no higher than the springing level of the great arches were raised to the present height.

Records also exist of repairs to the supporting arches in the ninth and tenth centuries; and at a date still more recent the dome itself was again fractured by an earthquake.

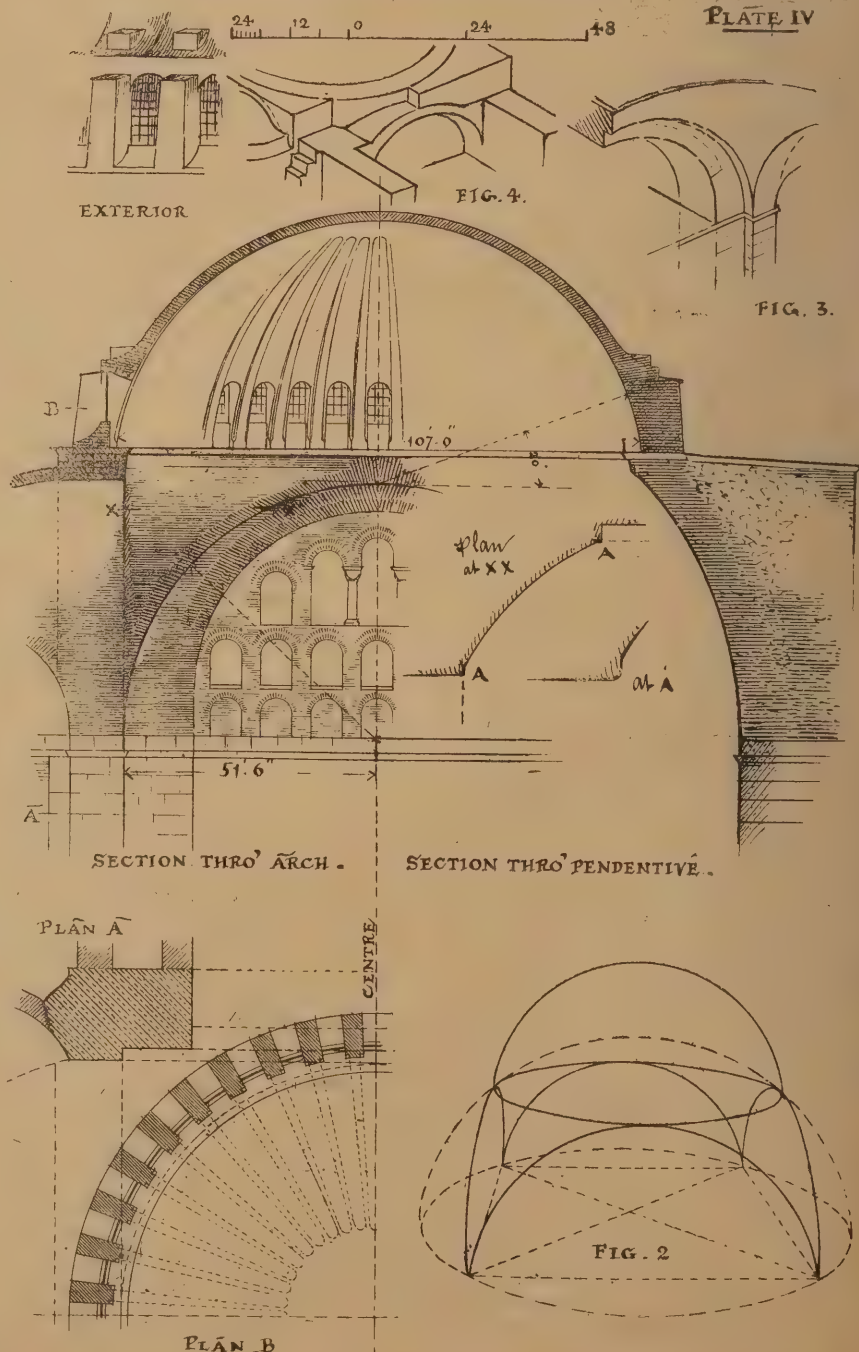
After the fall of Constantinople, A.D. 1453, the church was divested of its arrangements for Christian worship, though its general structural character remained unchanged.

No. III.—THE DOME OF THE DUOMO, FLORENCE.

We now approach the consideration of a work which presents a combination of ideas quite unfettered by the influence of preceding examples.

STĀ-SOPHĪĀ-CONSTANTINOPELE

PLATE IV



The conditions on which the Dome of the Duomo is turned have little in common with those attaching to an ordinary dome. The latter is generated by the rotation of an arch on its vertical axis, when the section, taken in every direction, will be exactly the same, and the thrust uniform all round. But in this dome, springing as it does from an octagon, each of the sides is, so to speak, a portion of a separate vault, and exerts a distinct and independent thrust. Consequently the dome lacks that coherency and strength which are associated with the circular plan, and the problem has been how to give to the structure the necessary stability while retaining the octagonal form.

Another equally important factor is the lantern, and from a report made to the Building Committee before the commencement of the dome, we learn that in his selection of the pointed form of arch in preference to one of semi-circular section, the architect was mainly influenced by the hope of securing adequate support for this additional feature. He points out that were the dome to be turned in a semi-circle, the great extent of the crown would certainly cause it to give way when the lantern was placed in position. "I have, therefore, determined," he continued, "to adopt the proportion and manner of the pointed arch, so that, when loaded with the lantern, each part will help to give stability to the others." This is perfectly in accord with the well-known fact that the tendency in a pointed arch without surcharge is to break up by rising at the crown and falling in at the haunches. And though this may also hold good of a dome of polygonal plan, it is evident that it does so to a far less extent, by reason of the lateral pressure at the angles.

The original tendency of such a dome is, by the superadded weight of the lantern, more than counteracted; the opposite tendency—an actual bursting pressure—being thus generated. The point at which the greatest force is exerted must, of course, depend on the pitch of the dome; the higher the pitch the less will be the thrust, and the lower the point of greatest weakness.

In a dome of circular plan and of uniform thickness, if its radius, drawn to the vertex, make with the vertical an angle of $22\frac{1}{2}$ deg.—as in the example under notice—its inherent thrust will be greatest at a point making with the horizontal an angle of $13\frac{1}{2}$ deg. And though the great Florentine dome lacks the first of these conditions, the expedients adopted with a view to its security bring it very nearly under the operation of the laws which govern an ordinary dome.

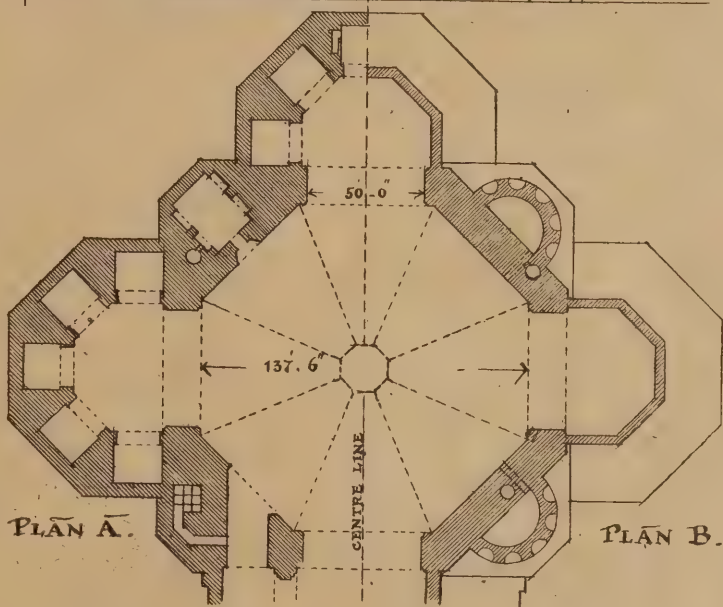
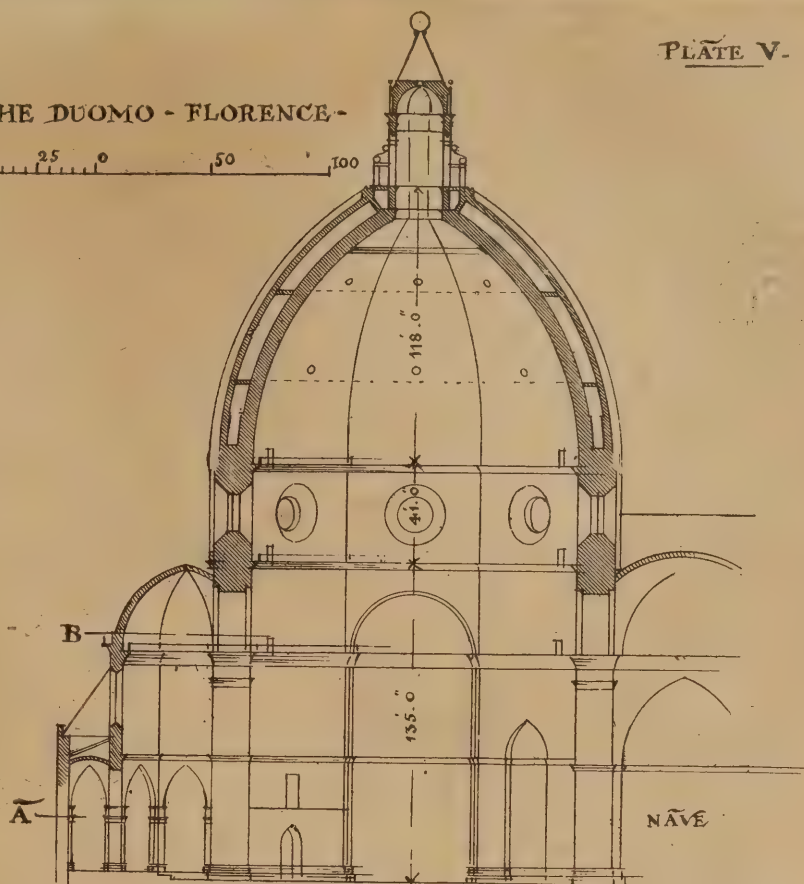
With reference to the substructure, it is worthy of remark that the octagonal plan here adopted possesses a decided advantage over the square, in that it admits of double the number of supports, and affords facilities for abutment at all points. Thus the idea partly acted on in Sta. Sophia, of extending the building on all sides in order to secure an equilibrium of forces round the central structure, is here fully carried out.

The octagonal space covered by the dome has a diameter of 138ft. 6in. Four of the sides are open to the main extensions, and spanned at the height of 100ft. by semi-circular arches of 50ft. span, and a depth of 16ft. To resist the thrust small adjuncts are built against the intermediate sides of the octagon, which, on the west, are pierced obliquely by comparatively narrow archways, whereby the aisles of the nave are continued to the central area.

This arrangement has the effect of reducing the supports at the western angles to two detached piers, which receive the arches of the nave arcades. Being thus surrounded by buildings, the central octagon possesses, in their walls and vaulting, a complete system of abutment to the height of 135ft. From this level the dome was to have sprung, according to the intention of the original architect; but his successor, believing the abutment sufficient for his project, carried up the wall to the further height of 40ft., thereby emancipating the structure from the manner of all preceding examples. This additional story is analogous to the tambour, or drum, of later domes; of

-THE DUOMO - FLORENCE-

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which, indeed, it may be said to have been the prototype. It not only relieves the supporting arches of the direct horizontal pressure of the dome, but also affords increased facilities for lighting, and gives great additional prominence to the structure.

The wall of the tambour is 16ft. thick, and on each of its sides is pierced with a circular window, 14ft. in diameter. This space for the admission of light is small in comparison with that provided in domes of more recent date; but, seeing that the full force of the twofold pressure is borne by the tambour alone, unaided by counterforts, the conservation of the strength of its walls was an absolute necessity.

From the wall of the tambour, at the height of 178ft. from the floor, the dome springs, rising to the additional height of 118ft. In the various methods adopted for imparting to this octagonal vault, so far as possible, the structural qualities of a circular dome, may be found material for an interesting study. To bring about the desired result, the eight distinct sides must be so united, or conjoined,

as to form one compact, coherent, and self sustaining whole, which should also be able to support the lantern.

In the first place we cannot fail to admire the judgment and skill of the architect in giving to the dome its cellular structure. By this apparently simple expedient he successfully attained the necessary degree of lightness, without any sacrifice of the requisite mass and strength.

The total thickness, which is nearly uniform, is about 14ft., and to the height of 10ft. from the base, consists of solid masonry, the two topmost courses of which are long plates of hard stone, laid transversely, thus forming a firm bed for the dome. From this point to the further height of 15ft., the inner vault has a thickness of 7ft.; and for the remainder, of about 6ft. At the angles, and occupying the full depth of the cavity and passing through both vaults, are eight ribs of stone, which diminish in width from 9ft. at the bottom to 2ft. at the top. On each of the sides are two other ribs, less in width, but

otherwise similar to those at the angles. At short intervals from the level of the second gallery, transverse arches or buttresses, at right angles to the vaults, spring from the main ribs, and, spanning the space occupied by the two intermediate ribs, tie the whole together and secure the outer vault (Fig. 3). At the top the ribs are received by the walls which circumscribe the central opening and support the platform for the lantern.

It will be seen that in the cellular mode of construction here adopted the disposition of material is somewhat on the principle that obtains in constructional ironwork, the ribs serving to stiffen the vaults and to restrain any tendency to open at the angles owing to pressure exerted by the lantern. The rapid decrease in width of the ribs generally in their ascent may also be regarded as an ingenious application of the principle which forms the basis of the abutment system. Yet the most important element in aid of the support of the lantern is, without question, the high pitch of the dome, combined with its great relative thickness. But with a view to greater security a strong belt or chainwork, consisting of beams of chestnut laid in the space between the vaults and passing through the counterforts, engirdles the inner vault at a level near to what would in a circular dome of the same pitch be mathematically its weakest part (Plate VI., Fig. 4).

The outer shell is by no means indispensable to the stability of the dome, it serves rather as a covering to the system of counterforts. Its greatest thickness is about 3ft., which slightly diminishes in the ascent.

The passages which surround the octagon in the cavity between the vaults have their floors supported on ribs built into the vaults at each end, and thus impart additional strength to the structure.

The small circular apertures in the inner vault, with recesses opening from corridors, were provided with a view to the suspension of scaffolding for the fixing and the repairing of the mosaic with which the interior surface is covered. Similar openings in the outer shell serve for the admission of light and air into the cellular spaces. (It may be mentioned that in the erection of the dome centering was altogether dispensed with, and no framed scaffolding was used for the first 50ft.)

The ribs are constructed entirely of stone laid in radiating courses, and the two vaults are of stone up to a height of about 40ft., the remaining portions being of brickwork to limit the weight. On the exterior it is covered with tiles, though the original intention was probably to face it with marble, but the only portions so completed are the moulded ribs, which give prominence to the angles, thus bringing the lantern into closer harmony with the rest of the design.

Following the octagonal plan of the central aperture, the lantern has an internal diameter of about 20ft., and, including the cupola, a height of 45ft. This portion is wholly of marble. It is capped with a conical roof of timber, covered with lead, which supports on its apex a metal ball and cross, making the total altitude from the floor about 385ft.

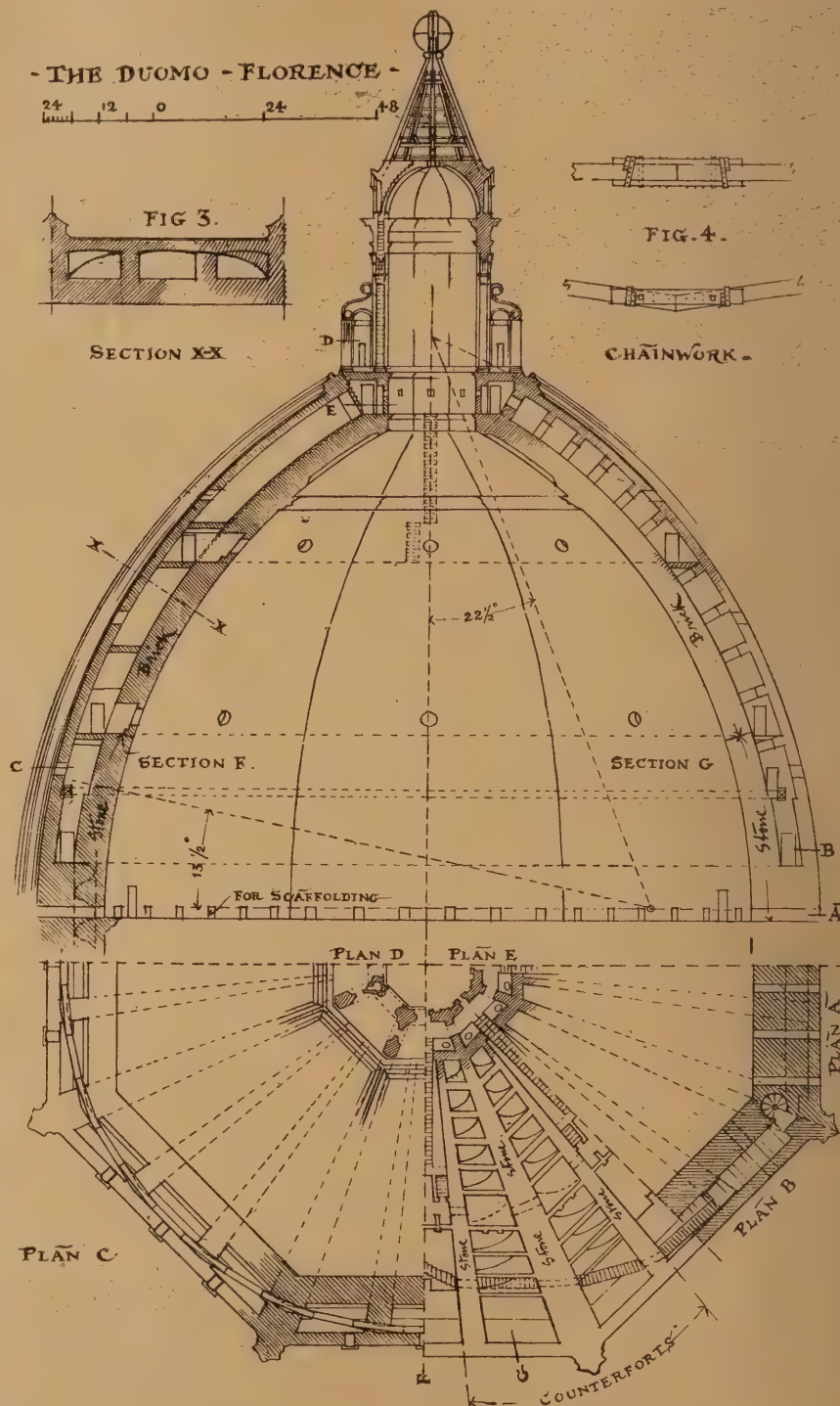
The skill shown in the methods employed for restricting the weight, while preserving an effective outline, and also in the arrangement of the supports, whereby the weight of the lantern is brought to bear directly on the main counterforts, is worthy of the highest praise.

The fractures—due, as is generally supposed, to settlement—which appeared in the dome about 200 years after its completion, having been secured with dove-tailed cramps, did not extend beyond their original limits. The partial subsidence of the foundations, to which they are attributed, may, in its turn, have been caused by the excessive weight of the superstructure, in combination with the unequal disposition of its supports. Yet, though in these respects the dome of the Duomo may somewhat unfavourably compare with other well-known examples, the novel system adopted in its construction must be said, upon the whole, to have successfully stood the test of time.

It is greatly to be regretted that a struc-

ture, so conspicuous amid its surroundings, should be marred by the incompleteness of one of its most important features. This has reference, of course, to the absence of the cornice, with galleries, round the top of the tambour, on the exterior. These, which formed part of the original design, would certainly prove a valuable acquisition to the building; and their addition, even after the lapse of nearly five centuries, would be a fitting, though tardy, tribute to the memory of its great architect. But even in the absence of these, he is justly entitled to the eminent distinction

architects and engineers was convened at Florence to discuss the question. At this conference the idea of raising the dome on a drum was first introduced by Filippo Brunelleschi, who had long been meditating a scheme for its completion. Failing to agree, the conference separated without any practical result. Several years later the question was reopened by the authorities again, seeking the advice of Brunelleschi, who suggested another Convention, to consist of leading native and foreign architects. This assembly met at Florence, A.D. 1420, when Brunelleschi fully detailed his



of having prepared the way for what has been termed "the modern type of dome," as exemplified in the masterpieces of Michael Angelo and Wren.

HISTORICAL SKETCH.—The erection of the Duomo was commenced within a few years of the close of the thirteenth century, from designs by Arnolfo da Lapo. At the time of his death, A.D. 1300, the work had not been carried higher than the springing of the vaults. Toward the erection of the dome no steps were taken until A.D. 1407, when an assembly of

scheme; and the authorities, having no better before them, requested him to furnish a report in writing. This was done; the architect explaining, with great minuteness, the design which was eventually carried out. This document—which has fortunately been preserved, and will be found an invaluable aid to an intelligent study of the structure—obtained for its author the commission for which he had long laboured. But it was, even then, hampered with humiliating conditions:—(1) That he must not proceed beyond a certain height

without the further sanction of the authorities; and (2) that, even during this portion of the work, he would not be entrusted with the sole control; for, at the instance of certain influential citizens, Lorenzo Ghiberti, the sculptor, was appointed as joint architect. The incompetence of the latter, however, became so patent as the work proceeded, that he was relieved of all responsibility, and Brunelleschi was appointed chief architect for life.

Thinking it probable that he might not live to see the completion of the work, he prepared, in 1434, a model, and specifications for the lantern, inserting in his will instructions for its erection accordingly—in case of his death. When that event took place, the lantern had been carried to a height of several feet, and most of the stone prepared for the remainder.

Not until the year 1461 was the topmost stone of the lantern laid, and on this Andrea Verocchio erected a ball and cross, which, being thrown down by lightning in 1601, were afterward replaced by those now existing.

WROUGHT IRONWORK IN CONSTRUCTION.

IN looking through the curriculums of the various architectural institutions, it is surprising to notice what little prominence is given to the study of constructional ironwork. The reason for this no doubt lies in our national conservative principles, but it must be generally acknowledged that iron has yet a very wide field for development in Architecture. Students have little or no encouragement to take up the study, and those studying under the masters of the Profession, perhaps more so than others, will regard one with a feeling akin to disgust if the subject be proposed to them. Architects foster this feeling among their pupils, as when they are tempted to use an iron stanchion or other form of construction, they are in a strangely desperate hurry to design its cloak and get the offending material out of sight, with perhaps lingering qualms of conscience for its adoption. It would be a much fairer treatment of the material if, instead of adopting a stock section, and employing a casing to obtain architectural effect and a wretched sham, a theoretical knowledge was applied in designing a section that could be used fearlessly without a casing. It is clearly impossible under present circumstances to hope to improve upon or bring into closer sympathy with Architecture the "engineering monstrosities" in the way of bridges and roofs which have been erected of late years. The greatness of these erections lies in their vastness of conception, and what little thought is given to architectural treatment is in almost every case misapplied. We cannot expect an engineer, whose architectural knowledge and training consists of having read a secondhand treatise on Gothic Architecture, to design beautiful structures. It is just as impossible for an architect to think of designing an iron structure without a theoretical knowledge. It rather staggers one to think of a church with an open iron roof; but why not? With its curved ribs and bracing springing with beautiful lines from tall slender columns one might look forward to an interior which for proportional effect would equal any Gothic cathedral. Certain it is, however, iron will figure as the generating factor of a new architectural period. The older members of the Profession cannot be expected to undertake a tedious course of mathematics, but it is surely time that more thought was given to the preparation of the younger members for the study of this important but much abused material.

A NEW CHURCH AT HARROGATE.

THE new church of St. Luke's, which has been in course of erection during the past two years in the northern part of Harrogate, was consecrated recently. The church occupies a prominent site in Walker Road. The new church extends over an area of 4000 yards, with a quick fall from the east, thus giving the west gable of the church a commanding position. The style is Decorated Gothic rather late in type, and principally characterised by the elaboration of the window tracery. The plan consists of a lofty nave, chancel, north and south aisles, south chapel, double transepts on the north and south sides of the nave, lofty organ chamber on the north of the chancel, and commodious vestries for the clergy and choir. The principal dimensions are:—Length within the walls 120ft., breadth across the transepts 70ft., and height of nave from floor to ridge 54ft. A lofty tower and spire are designed for the west front, but the lower stage only has been built, and forms the baptistery. The tower staircase is crowned with a temporary roof, and forms the bell turret. The nave is divided into six bays, with lofty octagonal pillars carrying moulded capitals, and

ARCHES IN TWO RIMS

with label mouldings, and above this arcade is the clerestory, containing two light windows, with tracery of alternating pattern in the heads. The west gable of the nave contains two lofty windows with tracery heads and moulded arches, together with a two-light pointed in the apex. A massive centre buttress terminates in a canopied niche intended to receive a statue of the patron saint. The east gable of the nave contains a lofty and elaborately moulded arch opening into the chancel, carried by moulded pillars with carved capitals. Single-light windows are placed in the side walls of the aisles, with a traceried window in the west end. The two double transepts open into the aisles by stone pillars and arches, and are lighted by four-light windows in the gables filled with tracery of elaborate pattern. On the south of the chancel three well-moulded arches open into the south chapel, and contain carved and traceried oak screens, and a larger archway gives access to the south chapel from the transept. The chapel is of three bays with square-headed windows at the side and a traceried four-light window in the east gable. The east window of the chancel is of five lights, well moulded, and filled with excellent stained glass by Messrs. Burlison and Grylls, of London, and on the north and south sides of the chancel are inserted triangular clerestory windows filled with tracery. The east window is one of the principal features of the church. Its general idea is the Te Deum. In the centre of the tracery is the Agnus Dei, surrounded by seraphim, cherubim, and angels. These hold scrolls with the verses: "Holy, holy, holy, Lord God of Sabaoth. Heaven and earth are full of the majesty of Thy glory. To Thee cherubim and seraphim continually do cry." In

THE CENTRE LOWER LIGHT

our Lord in glory standing crowned and holding the orb; underneath, on a scroll held by angels, is the text: "Thou art the King of Glory, O Christ. Thou art the everlasting Son of the Father." In the left-hand side lights St. Peter the Apostle, with the scroll: "The glorious company of the Apostles praise Thee"; and Isaiah with the scroll, "The goodly fellowship of the Prophets praise Thee." In the right-hand side light St. Stephen the Martyr, with the scroll, "The noble army of Martyrs praise Thee"; and St. Wilfrid, bishop and patron saint of the diocese, with the scroll, "The Holy Church throughout all the world doth acknowledge Thee." In the lower tier are our Lord on the cross occupying the central light, St. Mary the Virgin on the left, and St. John the Evangelist on the right. The two outer lights on the left St. Luke (patron saint) holding the church, and St. Paul on the right. The figures are placed on richly coloured diapered backgrounds under canopies. The principal entrance of the church is by the south porch, which contains an elaborately moulded archway, with carved capitals and moulded pillars, and in the apex is a traceried

niche to contain a figure of our Lord with attendant angels. Other entrances to the church are in the north and south transepts, and at the west end of the north aisle, this latter being intended for exit only. The whole are provided with oak doors made to open outwards. The roofs, excepting to chancel, are open timbered of pitch pine, neither stained nor varnished, boarded, felted, and covered with Westmoreland slate. The ceiling of the chancel is wagon-headed, moulded, and panelled. The seating for the choir is of oak, elaborately carved and moulded; the remainder of the seats being of pitch pine varnished. Fixed sitting accommodation is provided for 760 persons, a space being reserved at the west end for chairs, which will increase the accommodation to 850 persons. The floors of the passages and chancel are laid with tiles, and the warming is by hot water pipes, special precautions having been taken to prevent down draughts from the roof. The pulpit is of stone, a special gift of the builder, Mr. Isaac Dickinson, and is octagonal in form, springing from a moulded shaft, enriched with panels of open tracery and finished with a delicately carved cornice. The lighting is by gas pendants suspended from the walls opposite the centre of each arch, and the windows are filled with clear cathedral glazing. The work has been carried out by the following contractors:—Masons, Mr. Isaac Dickinson; joiners, Mr. James Taylor, of Yeadon; plumbers and glaziers, Messrs. E. Pratt and Son; plasterers, Messrs. B. Sugden and Son, of Bradford; slaters, Messrs. Baynes; painter, Mr. Dent. The stone carving is by Mr. J. Elliot and Mr. S. Charnock, the pulpit and font by Mr. P. Woods, of Harrogate, the gas fittings by Mr. T. Powers, of Manchester, and warming apparatus by Messrs. Seward, of Lancaster. The entire building, including boundary wall, will cost about £10,000, and has been carried out under the superintendence of Mr. G. H. Elliott, clerk of works, from the designs of the architects, Messrs. T. H. and F. Healey, Bradford.

LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday of last week at the County Hall, Spring Gardens, Dr. Collins, chairman, presiding.—The General Purposes Committee recommended that Mr. Blashill, the superintending architect, who contemplated retiring from the service of the Council, be requested to continue to hold his appointment for another year as from December 8th next. His retirement at this time would cause great inconvenience to the public service, and he was willing to place his services at the disposal of the Council for another year.—The report was agreed to.—On the recommendation of the Improvements Committee the Council sanctioned an expenditure of £207,400 for the carrying out of the Long Lane and Tabard Street, Southwark, improvement, for which the sanction of Parliament has already been obtained. The scheme provides for the widening of Long Lane and the continuation of Tabard Street, through St. George's Churchyard, into Borough High Street.—The Theatres Committee brought up a report stating that a set of amended plans had been submitted for the fitting up of Olympia for the purposes of Messrs. Barnum and Bailey's show. The original plans, which were rejected by the Council, did not provide any proper division between the stage and the auditorium, and the arrangements for the stabling of the horses were not satisfactory. The new plans showed an iron screen with asbestos on expanded wire to be built on both sides of the stage to form the wings of the proscenium, and the portion over the proscenium opening would be suspended from the roof, and would consist of an iron frame with a covering of asbestos cloth. A moveable curtain of the same construction would be provided to the proscenium opening. Increased gangway accommodation was also shown. With certain conditions attached, the Committee thought the plans might be approved.—The Council adopted the report.

A REMARKABLE engineering feat was accomplished on Monday week.—the Pennsylvania Railway Company removed the old bridge over the Schuylkill river, and simultaneously replaced it with a heavier steel structure 242ft. long and 25ft. wide. The moving operation was completed in 2min. 28sec.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

November 3rd, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ART teaching is a very different thing to what it was at the beginning of this generation, and the effect of it may be seen in the changed aspect of things that surround us in our daily lives, whether it be a book-cover, a wall-paper, a water-pitcher, or the ubiquitous poster. Human limitations forbid that great artists should ever be numerous. But it is possible, by training, to educate the sense of the beautiful, latent in most peoples, and capable of being expressed by a certain proportion of individuals to a degree that causes a marked change to take place in the public taste as exhibited in dress and the household. And this will be acknowledged to have been accomplished in our own country, if we compare the every-day surroundings of forty or fifty years ago with those of the present. The world hears of the great Masters of Art, but, for the most part, it does not know anything about the little army of artists who make life more beautiful in a wider sphere than that enclosed within the walls of a palace or a picture gallery. If it did it would perhaps be surprised to learn how many of them are women. Among the organised forces that tend to produce such, the institution in Queen's Square is one of the most important. The exhibition of students' works which has just been held is as gratifying on the score of the high level attained generally as on the excellence of that which has gained awards. We believe that the school has turned out not a few students who have achieved success in the paths of Art.

THE appearance of hoardings around the premises on the west side of Parliament Street marks the beginning of one of the biggest Government schemes of building that London has witnessed for many years. It is proposed to accommodate here the Board of Trade, the Education Department, and an extension of the Local Government Board. The frontage will be in line with the Home Office, so that a considerable metropolitan improvement will be effected at the same time. As a consequence, the County Council is to be asked to contribute towards the cost of the land that will be given over to the public. Doubtless, this will be arranged without much question. In any case the Government will be involved in a very heavy expenditure, for the estimated cost of the new offices on this and smaller adjoining sites runs to nearly two millions.

KING STREET will entirely disappear under the scheme, and London will lose an old and historic thoroughfare. Long before Parliament Street was made, King Street was the only way from Whitehall to Westminster Abbey. It originally extended from Charing Cross to the King's Palace at Westminster. Lord Howard, who led the attack on the Spanish Armada, lived in King Street; and here Queen Elizabeth's Privy Councillors used sometimes to hold their meetings. It was here, too, where Edmund Spenser, the poet, died. It was in King Street, also, where Sir Henry Wootton had lodgings, the author of the celebrated

saying that "ambassadors were men sent to lie abroad for the benefit of their country."

AN effort will be made next session to amend the Act for the protection of ancient monuments. The object of the amending Bill will be to extend the powers of the inspector, so that the "blessed word compulsion" may be submitted for the "voluntary" provisions of the existing law. There is a prevalent idea that General Pitt-Rivers exercises authority of some sort over all "ancient monuments" in the country, but as a matter of fact his authority as inspector is derived from the voluntary action of the owners of such monuments. Consequently, he has been powerless to prevent sundry acts of vandalism which have destroyed certain of our most interesting antiquities, and Stonehenge itself might be destroyed to-morrow in spite of General Pitt-Rivers and the Act which he administers if the owner of the ground chose to do so. Of course there is little risk that such a moral crime would ever be perpetrated, but a correspondent learns that a crime of this kind, only less heinous in degree than the destruction of Stonehenge would be, has been actually committed in another part of the country, and a most interesting "ancient monument" broken up to provide "metal" for the roads in its vicinity. So there seems to be urgent reason for the amending Bill which is in contemplation, and which it is to be hoped Parliament will pass without delay.

THE site of the prehistoric Celtic lake village near Glastonbury has been further excavated since July, under the superintendence of the discoverer, Mr. Arthur Bulleid. The sites of the dwellings are marked by mounds. One of these opened this season was found to contain the framework of a loom, which must have been discarded and deposited there with the brushwood and wattelwork, which forms the foundation of the dwellings. As in each previous season, a large number of bone articles have been discovered. In one mound the number of broken bone needles and splinters of bone seem to indicate that it was used as a needle factory; another mound was very rich in fragments of pottery, and other evidences of the manufacture of hardware. No less than ten bronze fibulæ were found, being in all respects like the modern safety-pin. When only a short distance below the surface, even bronze, although retaining the appearance of stability, becomes very fragile, but when coming from deep in the peat, the preservation is always excellent. A neatly-cut iron file, of about 8in. long, was found.

A NEW scheme has been put into operation in connection with the work of the National Trust for Places of Historic Interest or Natural Beauty. As its name indicates, the object of this Trust is to preserve all that is beautiful and historic in scenery and buildings, and the better to do this it is proposed to establish local branches, whose business it will be to report to headquarters any danger that may threaten archaeological or historic objects. Apart from the preservation of things ancient and interesting, a register of which is to be kept, this scheme will serve a useful purpose, inasmuch as it will furnish the Jonathan Oldbuck of the present time with valuable information respecting antiquarian curiosities in all parts of the country.

VISITORS to Paris have all remarked the ruined buildings opposite the Jardin des Tuileries, and have wondered, no doubt, why a thrifty people like the French should have allowed so fine a site to remain the abode of bats and owls for the past quarter of a century. But all that is going to be changed. The Cour des Comptes, as the building was called before the torch of the Communard was applied to it, is once again to be turned to human uses, the French Chamber of Deputies having voted the Bill empowering the Orleans Railway to extend their line and place their terminus there. To the travelling public the new station will be a great boon.

ALAS, for the glory of the Barnato Mansion in Park Lane; it is rapidly being stripped of its outward adornment. Scaffolding has been erected, and workmen are engaged scraping off the lavish ornamentation of pillars, walls, and windows. They have not started with the sculpture, but it is all to come down. One thing certainly will have to come away: that is the monogram of Barney Barnato, which was skilfully introduced within a medallion in the background of one of the most interesting groups of figures. It seems that Sir Albert Sassoon prefers a plain exterior to his new dwelling; or, as a hard Philistine unsympathetically puts it: "He wants his house to be a little less like an insurance office than it now is."

THE late Sir John Gilbert may fairly be said to rank among the most prolific artists of our own or any other time. Since his first appearance as an exhibitor, in 1836, he showed no less than 375 works in oil and water-colour at various galleries; and that in spite of the fact that he was one of the busiest illustrators on record. During his life he must have produced some thousands of studies and black and white drawings. His rapidity of production is in some measure to be accounted for by his habit of working entirely from imagination; he rarely, if ever, drew or painted from models, and yet, in spite of the definiteness of his style and the strong individuality of his manner, he repeated himself hardly at all. His pictures were always easy to recognise, but if compared with one another their variety was extraordinary.

MR. T. S. ROBERTSON, architect, Dundee, will shortly publish through Messrs. Gay and Bird, London, a work on "The Progress of Art in English Church Architecture." The author aims at conveying a distinct impression of ideal beauty as it is found in Gothic Architecture. He has been led to prepare the volume through the want of a proper study of English Church Architecture as a whole. The Cathedrals of England have been fully dealt with separately; but Mr. Robertson traces the evolution of ecclesiastical Architecture from a survey of the whole. He has written, as far as possible, in non-technical terms, so that the work will be of equal interest to the general reader and to those specially informed. The volume will be illustrated by sketches from churches of all the periods of English Architecture from the Norman Conquest to the reign of Henry VIII. All the illustrations are from drawings by Mr. Robertson.

THE large invitations to the Lord Mayor's banquet on November 9th are this year of a more tasteful character than usual. Instead of bearing a gaudy-coloured design of a commonplace type, the cards are printed from a copperplate in brown ink on proof paper, and with their Chippendale scheme of ornamentation they have an excellent effect. Small views are given of the Diamond Jubilee ceremony at St. Paul's, the Lord Mayor's banquet in 1837, at which Her Majesty was present, the Tower Bridge, and the Guildhall, while reproductions are shown also of both sides of the medals issued on the occasions of the opening of the Royal Exchange, the thanksgiving service after the Prince of Wales's illness, the opening of Blackfriars Bridge, and the dedication of Epping Forest. Portraits of the Queen at the date of her accession and at the present day complete the design, into which the lettering falls naturally and unobtrusively.

AT a recent meeting of the City Commissioners of Sewers, it was referred to the Finance and Improvement Committee to consider and report upon the important rebuilding scheme of the Bridge House Estates Committee, with regard to London Wall, in order to effect a widening of the thoroughfare.—The Streets Committee reported upon an application from the Central London Railway Company for permission to proceed with the staircase to the underground station at the corner of Queen Victoria Street and the Poultry by Messrs. Mappin's. The Committee recommended that the Company should be allowed to commence operations accordingly, subject

to the hoarding with which it would be necessary to surround the works being erected and maintained to the satisfaction of the engineer, and on the condition that the hoarding was only to remain during the pleasure of the Commission, and that no advertisements should be placed thereon.—Messrs. Mappin and Webb wrote, pointing out the serious loss which the erection of such a hoarding would cause them, and suggested that iron railings which might be covered with a tarpaulin while the excavations were going on might be substituted.—The Chairman said the engineer would look after their interests.—The report was carried.

THE report of the trustees of the National Portrait Gallery is extremely interesting, for it proves beyond dispute how popular the collection has become since its transference to a building where the pictures can be seen under reasonable conditions. Already the new building is in need of considerable extension, for there is practically no room available for the additions that are being steadily made to the collection, and in a short time the rooms must become inconveniently overcrowded.

PENDING the provision of buildings suitable for the housing of such a valuable collection of Art and Science subjects as that at South Kensington, the Select Committee on Museums has made its first report. Some of the features of the report have been anticipated, but the feeling of alarm which the original announcements created is shown to be fully warranted. The report speaks of "a number of old buildings, built of wood and lath-and-plaster, and in some instances covered with tarred felt, in close proximity to the modern permanent buildings which contain the bulk of these collections;" and says the "roofs of the galleries in which the Sheepshanks and Jones collections, the Chantrey Bequest, the Water-Colour Gallery, and the Dyce and Forster collections are housed are constructed mainly of unsuitable timber, and are especially open to fire damage from the fact of having wood lanterns, skylights, and open side-lights;" "the private residences of the officers of the department, in the immediate vicinity of the galleries, are a further source of danger. The whole of the floors are of wood, the partitions running up and dividing the upper stories are of wood, the staircases are of wood, and the roofs are also of wood. The party-walls dividing the residences have not been carried through the roof. There are eighty-one open fire-places." The Committee expresses its very strong opinion that permanent buildings for the adequate accommodation of the collections at the South Kensington Museum should be proceeded with without delay. They are of opinion that it will be a source of grave discredit to the country if the settlement of this matter, which has been the subject of consideration by Government for many years, and of endless correspondence between the Departments concerned, is any longer delayed.

THE old sessions house and prison in Well-close Square, "within the Liberties of the Tower of London," is about to be pulled down. The carved oak, the panelled walls, the hammered iron-work, and above all the wood upon which is cut and scratched the names of its one time captives, will be scattered to the four quarters of the bric-à-brac world—to Whitechapel and Wardour Street, to Great Portland Street and the Old Kent Road.

A RELIC of olden days has been found in a field in the parish of St. Michael's, South Elmham, Suffolk, in the form of a pierced stone hammer. The weapon, or tool, of which this was the head, would be a formidable implement in the hands of a strong, active warrior. It measures 5½ in. long by nearly 4½ in. wide, and is 1½ in. thick, while the weight of it is 37½ oz. It is a piece of very hard quartzite stone, similar to many which occur plentifully in the road material of Suffolk, but which the road menders find so stubborn to deal with that instead of running the risk of breaking their hammers in attempting to crack them they usually throw

them into the deep ruts or into the hedge bottom. The broad end of this ancient "celt" is considerably abraded with use.

THE autumn exhibition at the Grafton Gallery, which opened on Saturday week, has been organised by the Society of Portrait Painters and the Society of Miniaturists. The former, which occupies all the rooms but one, is quite as interesting as any of its predecessors, though the great size of the galleries has led to the admission of a certain number of large pictures of somewhat inferior quality which do not tend to raise the level of the exhibition. The modern painters of full-length portraits, in the praiseworthy desire to escape from the commonplace mid-Victorian type, can think of nothing better than to imitate either Velasquez or Sir Joshua—Velasquez being seen, so to speak, through the spectacles of Mr. Whistler, and Sir Joshua's compositions being often almost copied after some of the prints which are now so much in vogue. There are examples in the present exhibition that will strike everybody, for there is no getting away from great full-length portraits which, like the little girl in the song, if they are not "very, very good," are apt to be "horrid." As usual, the exhibition is fairly comprehen-



THE RATHS KELLER, HALBERSTADT.

BY W. HARDING SMITH.

(At the Society of British Artists' Exhibition.)

sive, admitting foreign as well as home-grown Art, and a certain number of pictures that have been seen before as well as new work.

CASTS of the frieze and metopæ of the Athenian and Siphnian Treasuries, discovered at Delphi, have been prepared under the direction of M. Homolle, for the Louvre, together with other antique fragments, including the bronze charioteer. It is to be hoped that replicas will find their way to Bloomsbury or South Kensington, as the Delphi remains illustrate an important period in the history of Greek Art.

THE latest Art competition is one instituted by the London Corporation for designs for a medal to commemorate the Diamond Jubilee. Prizes of £50, £20, and £10 are offered for the best designs, which are to be adjudicated upon by a committee of the Corporation, aided by competent professional advice. The rewards offered do not seem princely, but they will no doubt be sufficient to induce a great many artists to compete, as there is plenty of unoccupied talent about. It remains to be seen, however, whether really first-class men will care to submit their productions to the test of a public competition.

MESSRS. POWELL, of Whitefriars, have designed, and Messrs. W. H. Smith and Son, of the Strand, have published, a set of six bold cartoons of the leading events in the life of our Saviour. By their general style, we should suppose they were originally drawn as subjects for stained glass work, but they are cold in colour, with one or two exceptions, and even these would have been better had the tints been more vivid. The least unconventional is the Annunciation, where the Archangel is a noble figure, the garb richly dight. There is colour, too, in the scene of the natal stable. But the baptism by St. John the Baptist, the Crucifixion (on a scale much larger than the rest), the Resurrection, and the Ascension need brightness if they are to tell the Great Story in an effective way. However, they will be welcome in schools. To our mind, the best kind of wall picture would be reproductions of the works of the great masters. Why should not the Annunciation, the Virgin and Child, and all the great events of the sacred story be shown to the children's eyes as Fra Angelico, Perugino, John Bellini, and Raphael pictured them?

THE very fine parish church of Poynings, at the foot of the Dyke, dating from the fourteenth century, presents so large a surface to the elements that it is somewhat difficult for the small community of villagers to meet the recurring cost of the needful repairs. By the advice of the architects, who have reported on the church, Messrs. Clayton and Black, of Brighton, the flint casing of the south wall of the tower (in some parts covering only chalk, as is not uncommon in these old Sussex churches) has been carefully renewed, but a good many other repairs are urgently needed. The village and its church are so frequently visited by admiring tourists that there should be no difficulty in getting together all the funds required for the proper preservation of this interesting fabric.

SOME interesting demonstrations have just been held at the "Alma" Board School in Southwark Park Road, Bermondsey, of the method of teaching design by the use of brush and coloured chalks, introduced considerably of late into the Kindergarten training and home tuition, as well as into a few of the elementary schools, and now permitted by the Committee of the London School Board as an alternative system for the use of teachers who disapprove of the old curriculum established by the Government Art Department. It is no secret that a respectful difference of opinion has long been rife as to "how to teach drawing." The long and tedious course of freehand copies, and toiling at the lights and shadows of casts from the antique, have led to a revolution in favour of more rapid processes. It is well-known, for instance, that Mr. Ablett's system has been doing good work in high schools all over the kingdom for many years past. It is based on class demonstration to teach observation of facts and the drawing of natural objects; and includes brushwork with much more besides. Here is another system, arranged by someone else, and consisting mainly of free use of the brush with a geometrical basis to work upon. When all is said and done, the higher branches of Decorative Art still sit up aloft, and design can no more be taught, beyond a certain point, than a great composer of music can be created merely through acquisition of all the laws of harmony. It is certain that those classic forms of Art that students spend years in trying to imitate, were done by men who had to begin with the ways of Mother Nature for the starting-point; and so our progress in methods seems to be to find this out. The ancient Egyptians, the Greeks, and the Japanese have done the same kind of thing that the sons of the labouring man in Bermondsey are striving at to-day.

THOSE who manage the affairs of the French Salon have declined the offer of the Government to place at their disposal the machinery gallery of the old Exhibition for their next two years' Exhibitions, in lieu of the old building which has been destroyed to make

way for the 1900 show. It is said that they see some veiled sarcasm in the name of the locale. It has been suggested that it would not be altogether disastrous to French Art if the Salon were discontinued for the two years, as the artists would have that time at their disposal to make more serious efforts for the Great Exhibition. But this can never be entertained; for there is not only the sentimental objection of breaking the continuity of a series which has extended for so many years, but there is the financial one.

AN exhibition of trades and inventions was recently opened at the People's Palace. The exhibition occupies an annexe temporarily erected for the express purpose, and adjoining the winter garden of the palace. There are about 200 exhibitors, including trading firms as well as artisan inventors, and the most gratifying exhibits probably are those in which the young people who are taking advantage of the technical and other educational institutions attached to the palace compete for distinction. In the exhibition an interesting object-lesson—of which it is said we shall see a good deal in the streets of London some of these days—is to be found just within the entrance; it is a tall, handsome column, fluted in green and gold, shown by the company or syndicate who propose to bring within the reach of wayfarers hot water and the materials for having a cup of hot coffee or tea in the open air. There are now 2500 students connected with the evening classes of the technical college attached to the palace, and many of these have sent models and fancy handicraft, some of these being of high quality. The 400 boys who are training for engineers and builders in the day schools have also contributed their quota. A boot-maker sends, not, as one would suppose, some masterly *chef d'œuvre* of leather work, but a cabinet-making production in the shape of a cathedral with a chiming clock. Young men and young women furnish designs for wall papers, embroidery, &c., and amongst the wood carvings there is nothing better than Perrin's wreath of flowers. A portable steam-engine in full working order, wrought by a blacksmith apprentice, is capital; and there is another notable bookbinding exhibit sent by a student. There are many specimens of hammered iron and copper. Amongst the exhibits sent by firms must be included the models from the Thames Iron Works. In the Doulton section, Tinnmouth's "Song of Miriam" must be a stimulus to the young artisans of the East End, and promise of the success to which they may attain in real Art.

A RUMOUR, that was a few months ago spread very persistently, concerning the probable re-opening of the Grosvenor Gallery as an Art exhibition, has lately been revived. In some ways it would be an advantage if the rumour proved to be well-founded, for certainly there are no rooms in London so well adapted for the display of works of Art; but, on the other hand, it is questionable whether there are not already galleries enough existing to accommodate all the current Art work that is worth setting before the public. It would be useless to open another show unless it can be filled with good pictures, and at present it is a little difficult to see where they are to come from.

EARLY next year an exhibition illustrating British Art will be held in the rooms of the Society for the Promotion of the Fine Arts, at St. Petersburg. About four hundred works in oil and water-colour will, it is expected, be brought together, and all the more prominent artists in this country will be represented. The range of the exhibition is to be as wide as possible, so as to show the varieties of expression in the different schools and groups. This British collection will be followed about three months later by a similar show dealing with Italian Art.

AN ingenious invention is the Halford Aerial Railway, by which it is claimed the need for the steam locomotive is superseded. It is of the overhead railway type, the lines being

raised at a certain height from the ground and the cars suspended on pivots attached to a bogie, which runs along the metals. The rails can be made up of sections of any length—from 70 to 100 yards would be the measurement on a full-sized railway—and the ends of each span are successively raised and lowered by hydraulic power, the top portion of each of the steel supports of the line acting as pistons. By this means a succession of gradients is obtained, and so the carriages are run along at a high rate, a working model, exhibited by Mr. Halford, gaining impetus as it rushes down one gradient after another at an immense speed. Immediately a section of the line is passed it resumes the level position. The inventor claims that a rate of 200 miles an hour could be obtained.

At a recent meeting of the St. Olave's (Southwark) Board of Works a discussion arose out of a recommendation of the Works and General Committee that Bermondsey Street be paved with hard wood. The recommendation was opposed, and the Surveyor, in reply to a question, said that hard wood had not been put down in any street for but very few years. But in Euston Road, where the traffic was much greater than in Bermondsey Street, this particular paving wore at the rate of one-fifth of an inch per annum. That being so, it would certainly last for more than seven years. The watering of such pavements was done more frequently, and consequently was more costly. Dr. Bond expressed his opinion that hard wood was more sanitary than soft wood. Mr. Hartley conceived that wood paving should be laid down as much as possible, in order to render the streets more convenient for business. Eventually, however, an amendment to relay the street with granite sets was carried by a majority of five votes.

THE presentation of prizes to the successful competitors at the twenty-eighth annual exhibition of turning in wood and pottery, organised by the Turners' Company, took place in the Egyptian Hall of the Mansion House.—Mr. J. T. C. Winkfield, who presided, said that although it was a matter of regret that they had not a more numerous collection, still it was a source of congratulation, because it arose from the fact that so much more attention had lately been drawn to this beautiful art that many workmen who were desirous of competing had not the time to do so. The Company did not, of course, take any credit for that revival, yet it thought that these annual exhibitions had tended to cultivate this taste in the public.—Mr. George Budd (one of the judges in wood), in speaking of the technical merits of the specimens, referred particularly to the excellent exhibits sent in by apprentices.—Among the principal prize-winners were Mr. F. Powers (Andover) and Mr. S. Stocks (London), who, in addition to a silver medal, had each conferred on them the freedom of the Turners' Company.

PROFESSOR JOHN MILNE writes from Shidehill House, Newport, Isle of Wight, pointing out that amongst the papers recently received from India is the official report from the secretary to the Chief Commissioner of Assam on the earthquake of June 12th last, which resulted in the loss of 1542 lives and the destruction of an enormous quantity of property. The cost of repairing damages in the Public Works Department a one is estimated at more than 35 lakhs of rupees, or, to put it moderately, over one quarter of a million pounds sterling. These figures do not include the cost of damage to local communications chargeable to municipalities and local boards or departmental expenditure not borne by the Public Works Department. In the circumstances, the Chief Commissioner is applying for a grant from Imperial revenues to assist the administration to recover from the effects of the earthquake. "Here," says Professor Milne, "we have a danger threatening life and capital which can only be avoided by the acceleration of engineering operations. With regard to the proposals that the various headquarters of the Assam administration shall be shifted to more

favourable sites, the interference which such a step would cause to public and private interests makes it desirable that the effects of earthquakes in the future should be met, not by escape to localities where movements might be less, but by changes in the methods of construction. During late years Japan has suffered from earthquake movements probably more severe in the ratio of nearly five to three than that which in June last created so much destruction in Assam. Profiting by experience and guided by experiment, Japanese engineers and their European colleagues have gradually departed from stereotype methods of construction, with the result that structures of the new type, whether they are ordinary dwellings or other works, have so far remained standing, whilst what is old is slowly disappearing. The facts that the Japanese Government annually votes from £1000 to £5000 to assist a committee in investigations which may result in modifying earthquake effects, has a bureau controlling the seismic survey of its country, and has appointed a professor of seismology at its University (at which all students of engineering listen to some twenty or forty lectures on construction in earthquake countries, and by this time may have read the report of its trained seismologist, Dr. F. Omori, sent to Assam to note anything that might be of benefit to his own country), are strong testimonies that material benefits have already been obtained from the study of earthquakes. When we consider the British capital invested throughout the seismic regions of the world, and the money from time to time expended in the restoration of consular and other buildings, we must surely feel that the sooner we turn attention, if only to that which has already been done to mitigate the effects of earthquakes, the sooner will the loss of life and property which accompany such disasters be reduced."

THE Society of Arts has just placed a tablet on the house at Hampstead in which Sir Harry Vane formerly resided, bearing the following inscription: "Sir Harry Vane, statesman, lived here. Born 1612. Beheaded 1662." The house is now known as Belmont, and adjoins the Soldiers' Daughters' Home. Both houses originally formed one residence.

THERE is a strong feeling in Russia just now in favour of the development of Art. In order to foster this feeling the Russian Government has arranged to hold exhibitions of some of the best masterpieces of painting in the world. The first exhibition will be one of British Art, and will be held this winter at St. Petersburg. Over 450 works in oil and water colour will be brought together, representing the best known English artists, and illustrating different schools and groups. The second exhibition will deal with Italian Art.

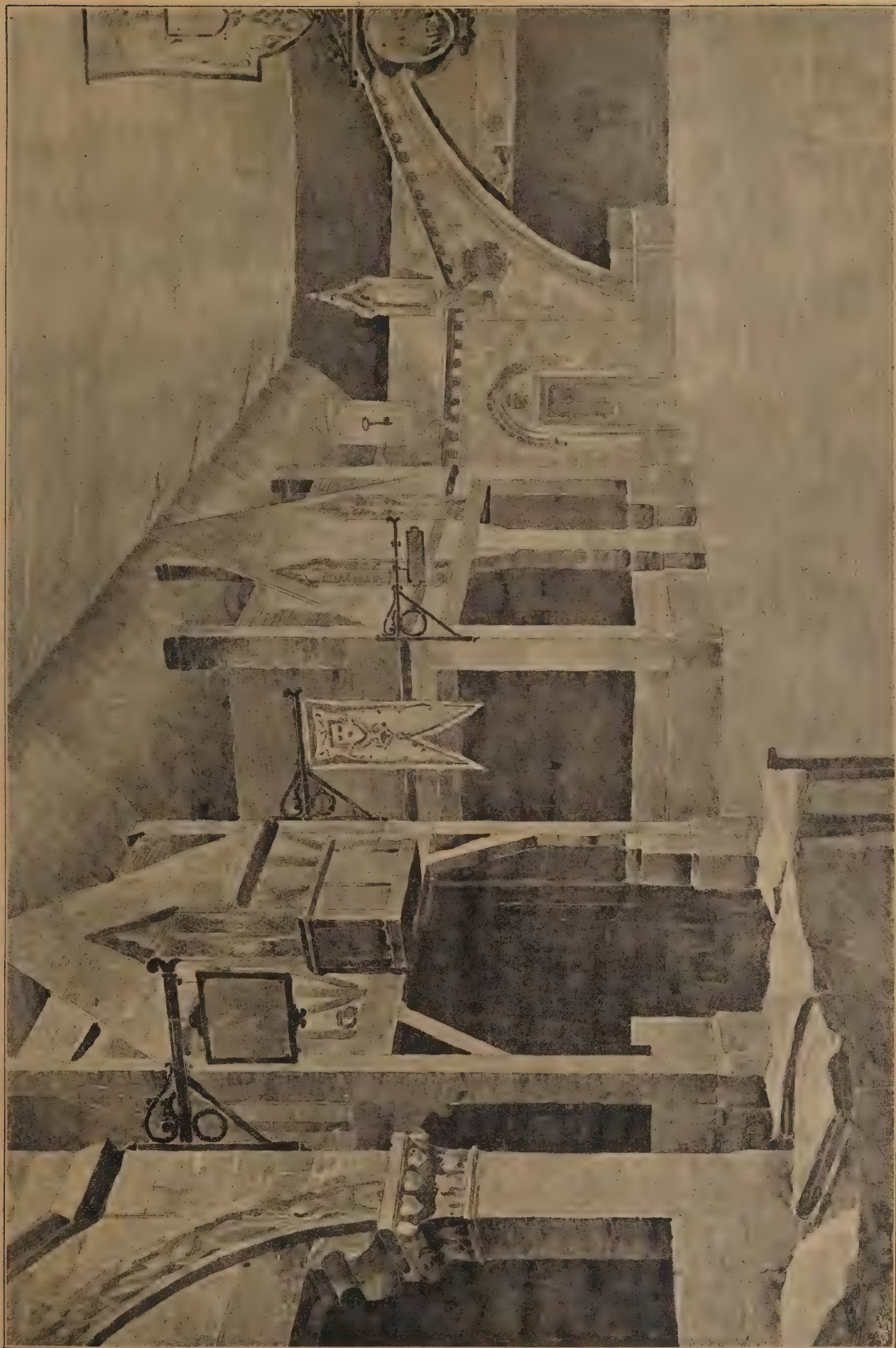
ACCORDING to M. Felix Dubois in his recent work on Timbuctoo, that mysterious city to which the late Joseph Thomson meditated a visit, is far less interesting than Jene, from which the word Guinea comes. This archaic town dates from the seventh century, and was built in the Egyptian style by Songhis, who emigrated from Egypt 1200 years ago, and who still preserve the traces of their Nilotic origin.

IN the course of the past summer, in consequence of a careful sifting of certain traditions found among the residents on the Ruthin side of the Hirathog Mountains, Mr. R. O. Jones, of Ruthin, has carried out a search over this almost uninhabited region for archaeological remains, and has succeeded in finding nine stone circles that were hitherto unknown. Some of the circles are perfect, and some imperfect, the latter having probably been deprived of stone for building purposes. The outside of each circle is composed of large stones, and, in those circles that have not been tampered with, the outer stones are twelve in number. Professor Rhys, of Oxford, holds that the remains are far more ancient than the Ogam inscribed stone found in the same region, and now at Pool Park, Ruthin.

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PARIS FIRE. GENERAL VIEW OF THE SCENE. PHOTOGRAPH BY M. BEICHAUT, PARIS.



INTERIOR OF PARIS BAZAAR BUILDING. FROM A SEPIA DRAWING BY E. O. SACHS.

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Surveying and Sanitary SUPPLEMENT.

NOVEMBER 3RD, 1897.

MODERN SANITATION.

By H. A. SAUL.

(Continued from page 215.)

IV.

IN many districts around London and elsewhere which do not enjoy the advantage of a connection for their main sewers with a large scheme such as that which has its termination at Barking or Cossness upon the Thames, other methods of disposal have to be resorted to. In many places the house drains are connected to cess-pools, and in others to a sewer which discharges directly into a stream or river with little or no previous purifying treatment. Each of these systems possesses serious disadvantages, such as the contamination of drinking water and the fouling and pollution of rivers; disadvantages which increase with the number of the population.

Mainly to the increase of the population became due the necessity of providing other means for dealing with the refuse of the house, to which end numerous small sewage works have sprung up for the reception and treatment of the sewage from the several localities in which they are situated. This treatment consists of a separation of the solid matter from the liquid, deodorising and compressing the former for disposal upon land or other purposes, and purifying the latter so that it may be conveyed without detriment to a convenient stream or river. Obviously the less liquid which is allowed to enter the sewage works, the more easy becomes the task of treatment, and the greater the economy in the size of settling tanks and working expenses generally. Chiefly for this reason the system was devised of separate drains for surface water, that the same might be directly conveyed without the admixture of soil to a point of discharge. This is the dual system, to which reference was made in a former article. The system has not been adopted merely in isolated localities, but in many new suburban districts which have their drains connected with the main sewage of London or other towns.

The accompanying plan, No. 3, is that of the ground floor of a small semi-detached villa, showing the drains laid to comply with the method above described. The soil drain embodies all the principles which have been described in the previous articles; in this

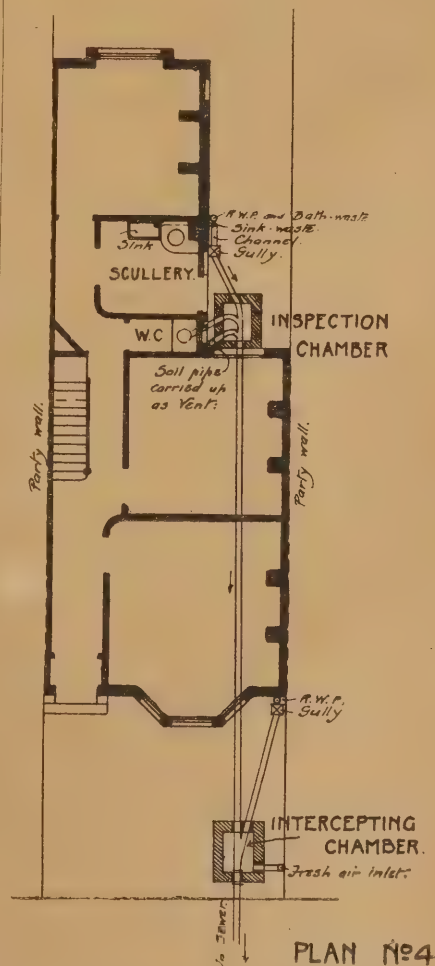
instance the w.c.'s have been planned at the head of the drain with a consequent efficiency and economy in ventilation, the sole vent-shaft being formed by continuing the soil-pipe upward. The surface water drain is similar in its construction to the soil drain, with one important exception, viz.:—that its course through the intercepting chamber is not by means of open channels, but by closed pipes, the object being to prevent sewage smell from finding its way into the drain. For purposes of cleaning or inspection one of the pipes within the chamber has a moveable portion which fits into a socket and is sealed in a similar manner to the cleaning cap of the sewer gas interceptor. This is known as a capped pipe, and is shown in detail by Fig 1. Where the drain passes through the chamber towards the road, an interceptor is fixed similar to that for the soil drain. Advantage has been taken of the nearness of the upper end of the drain to the turning chamber to continue the same into the latter, where it terminates with a socket into which is fixed a plug, similar to that used in connection with the cleaning arm of the sewer gas interceptor illustrated and described on page 191 in Article II.; this is for inspection and cleaning purposes. It is not necessary to provide ventilation for the surface water drain of so small a house as that under consideration, although it would be advisable to do so with a large scheme in which there were drains of considerable length.

An arrangement has been shown upon the plan in connection with the wastes from the bath and the sink, which differs from that which has been described in the former articles. This has been done to comply with the bye-laws which obtain in some districts, and which have been compiled at a more recent date than those which would render permissible the method already illustrated. The following is an extract from the recently published set of bye-laws:—"Any person erecting a new building shall cause the waste-pipe from every bath, sink (not being a slop sink constructed or adapted to be used for receiving any solid or liquid filth) or lavatory, the overflow pipe from any cistern and from every safe, under any bath or water closet, and every pipe in such building for carrying off waste water, to be taken through an external wall of such building, and to discharge in the open air over a channel leading to a trapped gully grating at least eighteen inches distant."

The idea of this arrangement is that eighteen inches of air are made to intervene, in which may become dispersed any smell from the trapped gully, which might otherwise pass up the pipe and so gain access to the interior of the house. Fig. 2 illustrates a channel and gully, and also a connecting piece for the bath and sink wastes. The channel is shown covered by a grating, although it is not necessary to provide this to comply strictly with the bye-laws. The waste-pipe connections can be obtained of various forms, with sockets of different sizes to suit almost any combination of pipes.

The descriptions of drainage have so far only

applied to houses having available ground at the side in which the pipes could be laid without passing under the building. Plan No. 4 shows a simple system to a small villa forming one of the terrace in which the drain has to pass beneath the house before it can be connected to the sewer. The bye-laws arrange for drains of this description as follows:—"No drain shall be constructed so as to pass under any building except in any case where any other mode of construction may be impractic-



PLAN No. 4.

cable, and in that case such drain shall be so laid in the ground that there shall be a distance equal at the least to the full diameter thereof between the top of such ground under such building. Such drain shall also be laid on a solid foundation in a direct line for the whole distance beneath such building, and be completely imbedded in, and covered with good and solid concrete, at least six inches thick all round.



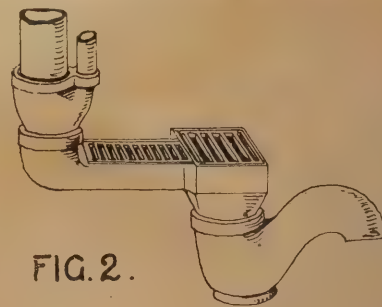
FIG. 1.

VENTILATION OF THE METROPOLITAN RAILWAY TUNNELS.

THE report of the committee appointed by the Board of Trade to inquire into the system of ventilation of tunnels on the Metropolitan Railway, together with the proceedings of the committee and the minutes of evidence, has been issued as a Blue-book. The committee, which was appointed by the Board of Trade on February 2nd last, consisted of Sir F. Marindin (chairman), Earl Russell, Sir Douglas Galton, Sir C. Scotter, and Dr. J. S. Haldane; and their duty was "to inquire into the existing system of ventilation of tunnels on the Metropolitan Railway, and report whether any, and, if so, what steps can be taken to add to its efficiency in the interest of the public." The committee points out that it was originally intended to work the traffic on the Metropolitan Railway with hot-water locomotives, and, therefore, no provision was made for ventilation; but the experiments made before the line was opened of this mode of working proved a failure, and the idea was abandoned. The Acts authorising the construction of the railway contained no clauses dealing with ventilation, and no restrictions are to be found as to the power to be used in working the traffic, these questions not having been raised before the committees in Parliament. Ordinary locomotives fitted with condensers were adopted, and in the first instance the fuel used was coke, but subsequently it was found necessary to resort to coal, which is the fuel now used. Remedial measures in the shape of openings and fans had not proved effective. The witnesses who gave evidence concurred in alleging that the portion of the railway which suffered most from want of ventilation at the present time is that between Edgware Road and King's Cross. The committee had mainly directed its attention to this portion, but

evidence was also taken as to the defective ventilation of the line from Baker Street to Finchley Road. As showing how the air in the tunnels is affected by the traffic, it is mentioned that there are at present 528 passenger trains and 14 goods trains in about 19 hours between Edgware Road and King's Cross. Each locomotive consumes 30wt. of coal and evaporates 330 gallons of water per hour. During the busiest times of the day there are 19 trains running each way in the hour. The engines would consume on the portion of the line between Baker Street and King's Cross 150wt. of coal, and would evaporate 1650 gallons of water in that time. Attention is drawn to the amount of carbonic acid gas in the tunnel air, and to other impurities which arise from the emission of steam, and from the fuel consumed by the engines. After considering the suggested remedies of removing the impure air by fans placed midway between the stations, and the provision of additional openings, the creation of which were objected to by the local authorities on the grounds of public health and depreciation of property, the committee concludes by stating its conviction that pure air can be best obtained with certainty in these tunnels by means of electric working. The conclusions are:—

1. That by far the most satisfactory mode of dealing with the ventilation of the Metropolitan tunnels would be by the adoption of electric traction.
2. That it would be practicable to ventilate the tunnels satisfactorily by means of fans placed at intermediate points between the stations, but that the cost of doing so would be considerable.
3. That, failing this, the ventilation, especially at the stations, would be sensibly improved by the provision of the openings proposed by the Metropolitan Bill of last year,



but that it could not be rendered satisfactory unless by a large increase in the number of openings therein proposed and a consequent large addition to the expense.

4. That, in view of the probable adoption of electric traction in the near future, it can hardly be expected that the Company should incur the heavy expense of at once providing artificial ventilation, and that, if it did, it would probably defer the more satisfactory solution of the question.

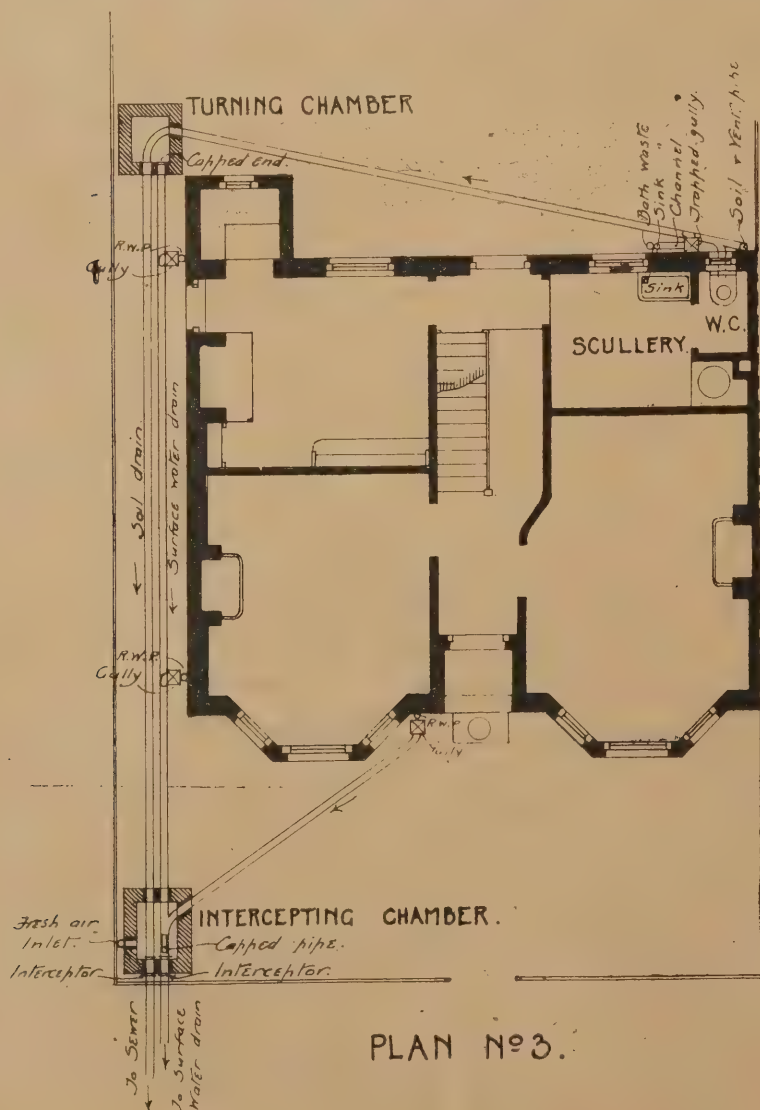
5. Therefore, as a temporary measure, the committee is prepared to recommend that the construction of the proposed additional openings, which would be found useful, even when the line is worked electrically, should be allowed, but only upon the condition that, unless electric traction be adopted, or some satisfactory artificial ventilation be introduced within three years after the passing of the Act authorising these openings, it shall be made incumbent upon the Company to close them if called upon to do so by some competent authority to be named by Parliament.

THE RECONSTRUCTION OF BOMBAY.

A SANITARY enterprise on a vast scale is announced from Bombay. The Government has laid before the Municipality a scheme for expending 50 million rupees on bringing up the house accommodation of the city to the standards demanded by the laws of health. This sum is apart from the outlay already devoted to waterworks and drainage—an expenditure enormous in the past and still going on to an extent that will exhaust even the liberal powers of borrowing granted by law to the capital of Western India. The Government is aware of this fact, and is preparing to make special provision not only for providing the funds, but also for the conduct of the new work. As Baron Haussmann reconstructed Paris from the point of view of political control, so Lord Sandhurst proposes to reconstruct Bombay from the point of view of sanitary safety. In replying to a deputation of the Bombay Chamber of Commerce last February, his Lordship referred to the urgent need for opening up the congested quarters of the city, for the removal of pestilential dwellings, and for the prevention of overcrowding in the future. Three-quarters of the population of the city are said to be crammed together in "chawls" or rookeries, some of them five to seven stories in height, and run up in defiance of every principle of hygiene. Long interior passages, or rather burrows, go from end to end of these buildings on each floor, giving access to the rooms, "for the most part

SMALL AND WHOLLY UNVENTILATED,"

in each one of which a whole family may live or die. The passages are quite dark, except where they open out on a gully, which serves as a sewage drain. Often they have no opening at either end, and the rooms may or may not have little windows. From five hundred to a thousand persons are sometimes squeezed into one of these pestiferous rabbit-warrens—a prey to infection themselves and a standing danger to the health of the city. We condense the above description from an account published at the beginning of this month. The truth is that the population of Bombay has rapidly outgrown the accommodation existing for it, and the problem before the Government is how to provide decent house-



room for nearly half-a-million of people living as no human beings should live. Lord Sandhurst's plan, whatever may be its financial results, is, says the Times, conceived on a scale commensurate with the evil to be dealt with. It first provides for opening out crowded localities by the construction of new streets, and for the creating of new house areas by levelling up low-lying localities, and by reclaiming considerable tracts from the tidal waters. Having thus secured new space, it next provides for covering it with tenements, to be let at comparatively low rents, and for improving the old unhealthy rabbit-warren in which 75 per cent. of the population is said to be now dwelling. More space and more air are the two main objects which it keeps constantly in view; and it has the merit of providing beforehand for the displacement of poorer inhabitants which any attempt to deal with their overcrowded barracks must at once involve. Fortunately there are tracts in and immediately around Bombay which admit of being utilised for the purpose. These tracts, some of them filthy swamps within tidal limits of the sea, have long been a source of danger to the health of the city. Lord Sandhurst proposes, among other works, to convert these

LOW-LYING HOT-BEDS OF DISEASE

into well raised areas for human habitation. Of the fifty million rupees which the scheme is estimated to cost, rather more than one-half will be devoted to cutting new streets through congested districts of the town, somewhat less than a third to reclamations and levelling, and the remainder to erecting tenements for the poor. The figures provisionally accepted by the Bombay Government in its resolution of September 29th are as follows:—

New streets opening out	Rs.
crowded localities	2,70,00,000
Reclamations	1,25,00,000
Chawls for the poor	83,00,000
Levelling and laying out	
vacant lands	17,00,000

Total Rs.4,95,00,000

The expenditure of this large sum and the construction of the works might seem to fall to the Municipality of Bombay. But Lord Sandhurst, while acknowledging the good work done by that Corporation, sets forth weighty reasons which render it expedient that the present scheme should be carried out by a special machinery of its own. It may be questioned whether such a task comes within the range of duties contemplated by the Bombay Municipal Act. It cannot be questioned that its cost lies beyond the present financial resources of the Bombay Municipality, already pledged to sanitary works almost up to the extent of its borrowing powers. The plague is straining, and will continue for some time to strain, the administrative energies of the Bombay Municipality to the utmost. Lord Sandhurst believes that it would be impolitic and unfair at this juncture to lay upon it the burden of so vast an additional task demanding immediate action, and involving an amount of detailed supervision which would more than double its executive work. All this, and more to the

same purpose, his Excellency says in courteous words and in a conciliatory spirit:—The Governor in Council fully recognises the success of municipal administration in Bombay, as exemplified, for instance, by the

MAGNIFICENT WATER-SUPPLY WORKS,

which constitute an achievement of which any city might be proud; but he is of opinion that a scheme of the character now in contemplation, requiring persistent and long-sustained efforts on systematic lines, involving so many varied purposes with the prospect of an almost infinite number of questions of detail, both in management and execution, and in which, moreover, large proprietary interest of Government will be involved, is essentially one that should be intrusted to a small administrative body, with special powers to raise funds, acquire property, and execute the necessary works. Such considerations receive additional weight from the comments of the Bombay press on the proposal. The head of a banking firm, well acquainted with municipal affairs, thus sums up his practical view of the case:—"It is well known that the landlord influence upon the Corporation is predominant, and hence it is altogether impossible for that body to carry out the scheme on broad and proper principles. This being so, some distinct corporate body, such as that now proposed by Government, is absolutely needed."

Lord Sandhurst desires to create a Board of Trustees for the purpose on the general lines which have been found to work so well in the case of the Bombay Port Trust. The Municipal Corporation will be strongly represented on the Board, but care will be taken to also secure the fair representation alike of the landed proprietors, of the general body of the citizens, and of the Government, which will itself have a very large stake in the enterprise. The idea of such a Board is not a new one, and the City of Glasgow Improvement Trust affords an example of a body constituted for similar purposes, and most successful as to its results. One of the leading Bombay papers in discussing this precedent makes the following remarkable statement, which we reproduce without pausing to verify:—"The City of Glasgow Improvement Trust, created some thirty years since, having expended three millions sterling, transformed Glasgow into a model city, and has been able to reduce the original demand of sixpence in the pound of the municipal assessment to one farthing in the pound, the revenue from the improvements paying nearly the whole cost of the civil administration." The Bombay Improvement Trust will be enabled to raise its capital at the low rate of interest which a Government enterprise in India can obtain. It will also start with

A LARGE AREA OF GOVERNMENT LAND,

transferred for the purposes of the scheme. The present value of these Government lands, and of their reclamation rights, is estimated at over 9½ million rupees, together with the municipal lands, valued at nearly three million rupees, making a total of 12½ millions of rupees worth of land rendered available for the objects in view. The Government will, in fact, make over almost the whole of its landed property in Bombay to the Improvement Trust for the

benefit of the citizens at a low rate of interest, calculated upon present values. During the first ten years the Government will charge nothing. "The Trust shall have the rents from the reclaimed areas for the first twenty years, and afterwards subject to a small charge on the market value, less the cost of reclamation." The capital will be raised gradually, as required. The Government estimates that the scheme will not at any time involve an addition to the municipal rates of more than 2 per cent. on the assessable value of properties, and it contains possibilities of becoming a source of financial strength in the future. The project must be primarily regarded, however, not from the point of view of contingent profits as a speculation, but with reference to immediate benefits which it will render to a great city that has outgrown its house-room. Among those benefits will be, not only more adequate accommodation for the overcrowded poor, but also new areas for the European and well-to-do native inhabitants, who at present pay fancy rents for the sites available for their dwellings.

Surveying and Sanitary Notes.

SURVEYS are being prepared for the construction of a deep-level electric railway connecting the London, Brighton, and South Coast main lines on the south of London with Euston, St. Pancras, and King's Cross. The proposed line will pass through the heart of the West End, and will have a station in the Strand, close to the great hotels and the theatres.

THE Town Council of Luton recently adopted a £40,000 scheme for draining and sewerage the town. In consequence of the wide difference in the amounts of the tenders, the contractor to whom the work was given has withdrawn, and the Corporation has now decided to undertake the carrying out of the scheme under the Council's own surveyor. This will mean regular employment for a large number of men for about three years, and already sixty hands have been put on. In consequence of the rapid growth of the town many improvements have been necessary during the last few years.

THE blocks of pulverised and compressed trap rock with an admixture of limestone and bitumen, which are being tested as road paving in the neighbourhood of Hyde Park, are said to possess an advantage over asphalt, as being non-slippery in wet weather, and over wood, as being impermeable. It is not for lack of experiments that London has not yet discovered a perfect paving material. Wood was hailed with delight on account of the relief of noise which it procured, but it leaves something to be desired on several accounts, not the least of which is the frequency with which wood pavements need to be "up."

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Nov. 6	Birmingham—Cottages and Stabling	Public Works Committee	City Surveyor's Office, Council House, Birmingham.
" 6	Fermoy, Ireland—Villa Residence		J. F. M'Mullen, 30, South-mall, Cork.
" 6	Haswell—School Alterations	School Board	R. Hogg, Fatten Pasture, Murton, via Sunderland.
" 6	Morecambe—Police Station, &c.	Standing Joint Committee	H. Littler, 21, Pitt-street, Preston.
" 6	Pontypridd—Additions to Hotel	D. John and Co., Ltd.	A. O. Evans, Architect, Pontypridd.
" 6	Swinton, near Rotherham—Rebuilding Church		E. J. Hubbard, Architect, Moorgate-street, Rotherham.
" 6	London, W.C.—Underground Convenience	Commissioners of Sewers	The Engineer, Guildhall, E.C.
" 8	Ipswich—School Alterations, &c.		J. S. Corder, Wimbourne House, Ipswich.
" 9	Maryport—School Enlargement	School Board	C. Eaglesfield, Architect, Maryport.
" 9	Sheffield—Stables, &c.	Corporation	C. F. Wike, City Surveyor, Town Hall, Sheffield.
" 9	Ulveston—Workhouse Alterations, &c.	Guardians	Master of the Workhouse, Ulveston.
" 10	Homerton, N.E.—Alterations to Children's Homes	Hackney Union	F. R. Coles, Clerk, Hackney Union, Homerton, N.E.
" 10	Greenwich—Dwarf Wall and Iron Fencing	Board of Works	Office, 141, Greenwich-road, Greenwich.
" 11	Gedney, Lincs.—School	School Board	R. P. Mossop, Clerk, Long Sutton.
" 11	London, E.—Baths and Washhouses	Vestry of All Saints', Poplar	J. B. Skeggs, Clerk to the Vestry, Town Hall, Poplar.
" 11	Southborough, Kent—Meter House, &c.	Urban District Council	C. Woodall, Palace-chambers, Bridge-st., Westminster, S.W.
" 13	Christchurch, Hants.—Workhouse Ward	Guardians	A. Drutt, Clerk, Workhouse, Christchurch.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Nov. 13	Pontefract—Hospital	Joint Hospital Board	Tennant and Bagley, Architects, Bagley.
" 15	Hornsey, N.—Central Library	Urban District Council	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N.
" 15	Plymouth—Market		King and Lister, 8, Princess-square, Plymouth.
" 15	Hampton Court—Coach House, Stables, &c.		H. Tagg, Thames Hotel, Hampton Court Bridge.
" 16	Acton—Fire Engine Station	District Council	D. J. Ebbetts, 212, High-street, Acton.
" 18	Stockwell, S.W.—Reconstructing Hospital Flues, &c.	Metropolitan Asylums Board	F. W. Aldwinckle, Victoria-street, S.W.
" 19	Burnham, Essex—Seven Dwelling Houses	Admiralty Works Department	Avenue House, Northumberland-avenue, W.C.
" 20	Ystradgynlais, Wales—School Buildings	Higher School Board	R. Morgan, Coalbrow-house, Onllwyn, via Neath.
" 23	Lewisham—Coroner's Court and Mortuaries	Board of Works	Surveyor's Office, Board's Office, Lewisham, S.E.
Dec. 4	Pontefract—Hospital Buildings	Joint Hospital Board	Termant and Bagley, Architects, Pontefract.
No date.	Fahan, Ireland—Erection of Chancel		J. E. Walsh, Bishop-street, Londonderry.
"	London—Synagogue		M. Goldstein, 26, Whitechapel-road, E.
"	Shrewsbury—Additions to Premises	Industrial Co-operative Society, Ltd.	Architect, Co-operative Wholesale Soc., Ltd.
"	Leeds—Workhouse Alterations	School Committee	J. M. Bottomley, 46, Albion-street, Leeds.
"	Arnside, Kendal—Two Villas	Guardians	J. M. Bottomley, 46, Albion-street, Leeds.
"	Belfast—Shops, &c.	E. Nelson	J. Stalker, Architect, Kendal.
"	Glangrwyney, Wales—Taking down House		H. H. M'Kenna, 51, Ann-street, Belfast.
"	Lingwood, Norfolk—Reading-room	Reading-room Committee	J. Blennerhassett, Estate Agent, Standard-st., Crickhowell.
"	London—Six Small Houses		J. Broom, Lingwood.
"	Moseley, Lancs.—Two Cottages	Oldham Brewery Co., Ltd.	Horncastle's, Cheapside, E.C.
"	Sligo—Completing Church		C. T. Taylor, 10, Clegg-street, Oldham.
"	Chopwell, Co. Durham—Forty-three Cottages	Consett Iron Co.	Frory, Walker's-row, Sligo.
"	Newcastle-on-Tyne—Erection of Laundry		Secretary, 19, Grey-street, Newcastle.
"			Oliver and Leeson, Architect, Newcastle.
ENGINEERING—			
Nov. 8	Jarrow—Floating Pontoon, &c.	Corporation	J. Petree, Surveyor, Corporation-chambers, Jarrow.
" 9	Bangor, Wales—Concrete Reservoir	Water Committee	J. Gill, Borough Surveyor, Bangor.
" 10	London, S.W.—Electric Light Cables	Railway Department of Victoria Colony	Agent-General for Victoria, 15, Victoria-st., Westminster.
" 11	Southborough—Laying Gas-mains	Urban District Council	C. Woodall, Palace-chambers, Bridge-st., Westminster, S.W.
" 11	Southborough—Water-mains Extension	Urban District Council	P. Hannan, Clerk, Council Offices, Southborough.
" 11	St. Petersburg, Russia—Steelworks, &c.		Acier Company, St. Petersburg, Newski 34.
" 13	Glasgow—Laying Mains, &c.	Corporation	Gale, City-chambers, 45, John-street, Glasgow.
" 13	Aarhus, Denmark—Engine and Pumps		Director of Waterworks, Aarhus.
" 13	Mundesley, North Walsham, Norfolk—Waterworks, &c.	Erpingham Rural District Council	Merryweather and Sons, Greenwich-road, S.E.
" 16	Heywood—Coke Elevator, &c.	Gas Committee	W. Whatnough, Gas Manager, Municipal-bldgs., Heywood.
" 17	Burnley—Electric Light Cables	Corporation	W. R. Wright, Electrical Engineer, Town Hall, Burnley.
" 23	Birkenhead—Steel Boiler	Corporation	Ferry Manager's Office, Woodside, Birkenhead.
" 30	Singapore—Street Lighting	Municipal Commissioners	C. C. Lindsay, 167, St. Vincent-street, Glasgow.
Dec. 31	St. Gilles-lez-Bruxelles—Gasworks	Council	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway	Government	Central Directorate, Public Works, Porte Alegre.
1898.			
Feb. 28	Pernambuco—Port Works	Government	Brazilian Ministry of Public Works, Rio de Janeiro.
No date.	Flushing—Sluice Gates		Provincial Government, Middleburg, Holland.
1897.	FURNITURE AND FITTINGS—		
Nov. 17	Moultsford, near Wallingford—Asylum Furniture	Guardians	Steward, Moultsford Asylum, near Wallingford.
IRON AND STEEL—			
Nov. 9	London, S.W.—Girders, Cast-iron Piles (Two Contracts)	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 9	India Office, S.W.—Steel Covered Goods Waggon		Director-General of Stores, India Office, Whitehall, S.W.
" 10	London, E.C.—Various Stores	Madras Railway Co.	J. Byrne, 61, New Broad-street, London, E.C.
" 12	Birmingham—Wrought-iron Steam Pipes, &c.	Water Committee	Offices, 44, Broad-street, Birmingham.
" 16	London, E.C.—Various Stores (29 Contracts)	Bombay, Baroda, & Central India Ry. Co.	Offices, 45, Finsbury-circus, London, E.C.
PAINTING AND PLUMBING—			
Nov. 6	Porthcawl, Wales—Painting Convalescent Home		G. F. Lambert, Architect, Bridgend.
" 8	Stairfoot, Barnsley—Painting Schools	Ardsley School Board	T. Harper, Clerk, Stairfoot.
" 12	Dublin—Coppersmith and Plumbing Work, &c.	Commissioners of Irish Lights	Irish Light Office, Dublin.
No date.	Slights Bridge, Whitby—Painting Two Villas		D. Richardson, Newholm, Whitby.
ROADS—			
Nov. 6	Bishop's Stortford—Broken Granite	Urban District Council	W. Gee, Clerk, Council Offices, North-st., Bishop's Stortford.
" 6	Teddington—Broken Granite	Urban District Council	M. Hainsworth, Surveyor, Elmfield House, Teddington.
" 8	Cockermouth—Carting	Urban District Council	Surveyor, Council Offices, Cockermouth.
" 8	Nantymoel, Wales—Paving, Channelling, &c.	Urban District Council	H. D. Williams, Surveyor, Blackmill, R.S.O.
" 8	Ogmore Vale, Glamorganshire—Paving, &c.		S. H. Stockwood, Bridgend.
" 9	Hornsey—Levelling, Paving, Sewering, &c.	Urban District Council	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N.
" 15	Romford—Tar Paving, &c.	Urban District Council	Surveyor's Office, Market-place, Romford.
" 15	Batley—Paving Materials	Town Council	O. J. Kirby, Borough Surveyor, Market-place, Batley.
No date.	Manchester—Setts	Highways Committee	Chief Clerk, Highway Office, Town Hall, Manchester.
"	Lewisham—Kerbing, Channelling, &c.	Board of Works	Surveyor, Town Hall, Lewisham.
"	Mansfield, Notts—Street Works		R. F. Vallance, Surveyor, Mansfield.
"	Sheffield—Roads and Sewers	Sheldon's Trustees	G. A. Wilson, Architect, Hartshead-chambers, Sheffield.
SANITARY—			
Nov. 8	Brighouse—Sewering	Highways Committee	E. Brooke, Borough Surveyor, Public Offices, Brighouse.
" 8	Provaumill, near Glasgow—Drainage Works	District Committee	District Sanitary Office, 28, Cochrane-street, Glasgow.
" 8	Tong, Yorks.—Pipe Sewers, &c.	Urban District Council	J. Drake, Winterbank, Queensbury, near Bradford.
" 9	London, E.C.—Pipe Sewers, &c.	St. Luke's (Middlesex) Vestry	Surveyor's Department, Vestry Hall, City-road, E.C.
" 10	Birkenhead—Sewers, &c.	Corporation	C. Brownridge, Surveyor, Town Hall, Birkenhead.
" 10	Erdington—Sewerage Works	Urban District Council	H. H. Humphries, Engineer, Public Hall, Erdington.
" 10	Southend-on-Sea—Pipe Sewer, &c.	Corporation	A. Fidler, Borough Surveyor, Clarence-rd., Southend-on-Sea.
" 16	Lytham, Lancs.—Sewerage Works	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
" 18	Stevens—Main Sewerage House Connections	Urban District Council	U. Smith, 41, Parliament-street, S.W.
Dec. 1	Launceston—Sewerage and Sewage Disposal	Corporation	Town Clerk's Office, Launceston.
No date.	Prenton—Scavenging	Parish Council	T. Johnson, Clerk to the Council, Prenton.
"	Manchester—Sewer Pipes, &c.	Paving, Sewering, Highways Committee	City Surveyor, Town Hall, Manchester.
TIMBER—			
Nov. 12	Birmingham—Supply of Timber	Water Committee	Offices, 44, Broad-street, Birmingham.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 8	Walsall—School Buildings		School Board.
" 13	Byfleet—Village Hall and Club		Committee.
" 20	Southend-on-Sea—Plans for Church	£26 5s.	St. Albans Church Committee.
" 20	Edinburgh—Schemes for heating, &c., Hospital		Public Health Committee.
" 30	Wells—Plans, &c., for Public Hall		Town Council.
Dec. 4	Cardiff—Designs for Town Hall and Law Courts, &c.	£25, £15, £10	Corporation.
" 6	London, E.C.—Designs for Jubilee Medal	£500, £300, £200	City Corporation.
" 15	Dorking—Designs for Infirmary	£20, £15, £10	Union Guardians.
" 15	Nottingham—Designs for Laying Out Cemetery, &c.	2nd Prize, £15; 3rd Prize, £5.	Corporation.
" 15	Nottingham—Designs for Cemetery Buildings	£100, £50	Corporation.
" 16	Menai Bridge—Designs for Landing Pier	£100, £50	Urban District Council.
" 31	Bootle—Plans for Fire Station, &c.	£40	Corporation.
		£52 10s., £26 5s.	

THE ADVANCEMENT OF ARCHITECTURE.*

BY PROF. G. AITCHISON, A.R.A.

WHEN I had the honour of addressing you last year, I chose a subject with which I felt sure you would all agree, as it was the recounting of some of the architectural triumphs of the past, and the pointing out of some of the services Architecture has done for those nations where it flourished. These services include the usefulness of the monuments at the time they were built, the adorning of the country, and the keeping of a record of that nation's greatness, of its peculiar characteristics, and of its position in civilisation. I thought that the first utterances of a new president should be as free as possible from controversial matter; but, after a year of office, the president becomes conversant with the wants and possibilities of the Society. I now propose that we should consider how the Institute can, with a reasonable hope of success, improve the Art it was specially created to cherish and advance. The

UNRAVELLING OF THE GREAT PROBLEMS

of humanity and the extraction of the lessons they teach are beset with difficulties, and some of these difficulties are apparently insuperable on account of our ignorance of the factors. Sometimes the glimmerings of light that the most perspicacious can see turn out to be not those of the dawn, but of mere will-o'-the-wisps, as in the case of Machiavelli's works. Machiavelli saw exactly what men did, and was not led astray by what they ought to do, and in the problems he set, he saw the solution wanted, but, misled by the ruthlessness of Nature, he overlooked the supreme importance of how the end was attained; so that the old adage "Let justice be done though everything perish" is a more useful maxim for mankind to follow than to attain its object by wickedness. We cannot suppose that among the two parties who alternately govern us, and help to mould our minds, to direct our aims, and to modify our desires, there are not on both sides upright and devoted men, whose views are as the poles asunder; and it is only by long experience that the value of the measures carried can be judged of. At the time of the discussion of such measures the partisans of the scheme are as sure of its excellent results as their opponents are of its pernicious effects, and as the clashing of the opposing views causes heated, angry, and acrimonious debates, so I fear that

SUGGESTIONS FOR IMPROVEMENT

may have the same effect amongst us. In considering Architecture, as in considering every other transcendental pursuit, we must take the existence of two things into account—namely, the set of the public mind and the occurrence of genius, and though we most urgently want genius in every branch of skill and knowledge, we have not the faintest notion of the causes of its production. The utmost we can do is to offer it ample opportunities of learning what it wants to learn, and to bestow our thanks and admiration upon its possessor and his works. The other cause of excellence is the set of the public mind in a certain direction; but why it sets in that direction is at present unfathomable, though we may roughly indicate that its set is always towards those pursuits that promise power, wealth, and delight. We may, however, say with certainty that in this age it does not set in the direction of Architecture. If the genius of all the great architects that ever lived were combined in one, and that one had the chance of showing it, the Architecture that he would produce would have little or no effect on the public, for the public now gets more, in that direction, than it either desires or deserves almost for nothing, and is perfectly ungrateful. The set of the public mind is so important a factor that we can hardly over-estimate its importance. Men whose turn of mind is in the line of that of the public generally decry

all attempts at systematic teaching, and proclaim that all schools and universities are

MERE SHODDY-MAKING FACTORIES

that turn out a colourable imitation from waste. When in the past there has been a sudden demand by a city or a nation for some kind of knowledge or skill of which there was a deficient supply, the head of that nation or city had no better remedy to offer than the creation of schools, academies, and universities, where the requisite knowledge and skill should be taught or tested, and where it was hoped they might be learned. This was the method adopted by Constantine the Great when he chose Byzantium for the capital of the Roman Empire, and caused to be built there copies of the Senators' houses in Rome, and of their villas in other parts of Italy. We know that in his time the Art of Sculpture had so declined that the statues and bas reliefs had to be taken from Trajan's Forum to form the adornments of his own triumphal arch, and that the sense of propriety had so decayed that there was no outcry against such folly; and though there was then a large influx of architects and skilled workmen into Byzantium, the work was so hastily and so unskilfully done that eighty domes are said to have fallen during his lifetime, and many buildings had to be pulled down in the time of his successors. So apparent was the

WANT OF COMPETENT ARCHITECTS

and skilled workmen, that he offered a premium to those who would have their sons brought up as architects, and to skilled workmen who would bring up their sons to their own trades. With this object he started schools in Italy and North Africa. May we not say that Santa Sophia, one of the masterpieces of the world, was the outcome of this teaching? After the irruption of the barbarians in the West there was a great want of both architects and skilled workmen, and the ecclesiastical authorities endeavoured to supply that want by founding schools in their abbeys and monasteries. Again, at the time of the Saracen irruption there was a dearth of architects and skilled workmen, for these energetic savages came at once from poverty into fabulous wealth, and wanted mosques for their new religion and palaces for their Kalifs, Sultans, and great men; and this want was tried to be met by schools and universities connected with the mosques; and there was again the same want in the days of Charlemagne, and to meet these wants the same methods were adopted. I fancy that all the systems but one offered teaching to all who came, and, I presume, who showed some aptitude; but Constantine, who was certainly an able man, only offered his

PREMIUMS FOR LEARNING ARCHITECTURE

to young men of eighteen years of age who had received a liberal education—whatever that meant then or may mean now. Looking at the enormous extent of the knowledge required by an architect, and the almost antagonistic powers of mind required, would it not be better to confine architectural teaching to Architecture? As Architecture is pre-eminently a constructive Art, construction should certainly be its foundation, the very last thing that would be thought of now, for the æsthetic architect would leave that to the builder and the engineer. It seems ludicrous not to insist on an architect who is to build, having such knowledge of statics as to know the proper method of resisting the force of wind, of water, and of earth, and the thrusts of arches, vaults, and domes. Statics would give us too important lessons in æsthetics, for it gives us the proper proportions of each part of a building when we know the height, the weight to be carried, and the strength of the material to be used. When these particulars are known and provided for, we may roughly say that we have only to accentuate the important part by mouldings, or have them adorned by the sculptor, to make it into Architecture. The literary, goldsmithing, painting, and modelling architects of the Renaissance left us one pernicious legacy, for their aim was to imitate Roman Architecture, and from their teaching the Gothic Revivalists have wanted to imitate Gothic, and the Greek

Revivalists have wanted to imitate Greek, though the Italian Renaissance architects gave grace and artistic perfection to their Roman models. This procedure of imitating the construction and æsthetic expression of a Pagan people who flourished 1200 years before the Renaissance seems to be a mistaken one, for Architecture is a progressive Art, not only in the scientific part of construction, in the increase of material wants and the

INTRODUCTION OF NEW MATERIALS,

but also in the æsthetic part; for no two successive generations like exactly the same forms, nor are the emotions that should be raised exactly alike. You certainly should not ignore the advances made in the Architecture of the immediate past. Between the Pagans of Ancient Rome and the Renaissance, there had been Christian Roman Architecture, the Byzantine, when the dome took so prominent a part; there had been Romanesque and Saracen Architecture; there had been Gothic which abandoned the opposing of inert mass to thrusts and used counterpoise, and showed a constructive skill never equalled till this age of iron; Gothic, too, had tried to express in its churches its ideals of Knighthood and of Roman Catholic Christianity. It was certainly not wise to ignore former advances in construction, and it was hardly possible to go back to pure Roman Paganism, however hard the Renaissance men tried. If we want to advance we must follow the example of the medievals; we must study deeply, observe accurately, reason logically, and be never deterred by failure, and endeavour to express the leading character of our time, which, I fancy, is the getting an insight into Nature's laws and applying them to our own wants. We must, too, endeavour to discover what in the heavens above, the earth beneath, or the waters under the earth we and our employers love to see embodied in our works, and how that embodiment should be expressed. In England we have artificially divided the constant increase of skill and knowledge, and

THE FLUCTUATION IN TASTE

of the Gothic architects, into styles which we call "Early English," "Geometric," "Decorated," and "Perpendicular." I want you to observe that these so-called styles were gradual developments. The first Gothic architects developed the mouldings of the Romanesque; the grouping of two or more lancet windows under an arch suggested a hole in the spandrel afterwards cusped with the new Saracen feature, and so on; and as skill increased and taste decayed, the tracery of the enormous perpendicular window grew mechanical and ugly. It is only by increase of æsthetic and constructive knowledge and the development of necessary features that any characteristic features of our own can be stamped on our Architecture. Anyone who can appreciate the beauty of mouldings, and has seen

GREEK ARCHITECTURE AT ATHENS,

cannot fail to observe how absolutely ineffective these mouldings are in the misty atmosphere of London, particularly when there is no sunshine. The only other architects who understood the art of moulding were those of the Middle Ages, after what we call Gothic was developed; their mouldings are perfectly effective in misty weather, but are too coarse and hard when there is full sunshine, while they are at all times wanting in grace. Yet I may say that the art of moulding is as much neglected now as the science of statics. No one can give genius, nor does it seem in one man's power to turn the desires of mankind in the direction he desires. You can, however, try to drive away from the Profession, by a thorough examination, all those who do not love Architecture; this love does not always ensure the possession of genius, but it mostly does. Having got the proper sort of men, you can see that they have that necessary knowledge and skill that would enable them to use the divine spark properly if they have it. Ben Johnson repeats Horace's adage that "the poet is born and not made;" but he adds, for all that, a poet wants a good deal of making, and it is the same in all the fine Arts.

(To be continued.)

* The President of the Royal Institute of British Architects' opening address of the session 1897-98, delivered at the first General Meeting, held on Monday night.

FIRE PREVENTION.*

By EDWIN O. SACHS,

Author of "Modern Opera Houses and Theatres."

(Continued from page 269.)

IF the Building Act of to-day defines the thickness of a party wall and its height above the roof, quite independent of the fact of a man giving a party, or lending his house for a drawing-room meeting, having a chemical laboratory in the place, dancing classes, or a school, why should there not be such planning compulsory as to prevent any room over a given size, be it a ballroom or studio, being used without risk to life? Why should not every large drawing-room on the first floor have sufficient exit and staircase accommodation to deal with the maximum number of people who press into that drawing-room? and let the same hold good for every class of structure, if a public house, a school-room, or a chapel. Do we not all know the bazaars held in houses kindly lent by charitable owners? I have a house in mind in Carlton Terrace, where the first-floor drawing-rooms are at times simply packed, and the staircases so crowded that it takes a full half-hour to get from one floor to another. The function was essentially a semi-public character, and as dangerous an one as I can remember. You all know the entertainment in the parish schoolroom, given ostensibly by the school-master to the friends of the pupils. Well, again, don't let us bother too much as to the exact purpose of any gathering, but let us build our larger room so as to allow for assemblies of any description, with

SAFE AND SPEEDY EXIT

in case of need. How are we to assure ourselves that even if any one room or hall fulfils the ordinary requirements of safety, as far as plan and construction are concerned, that the variations in the interior arrangement, in the decoration, &c., do not more than annul what the architect has done? Of course a building, a room, or a temporary structure should be used for what it is designed, and for no other purpose. But in reality we must consider the possible purposes to which a room may be put; in fact, the dangers of any decoration or paraphernalia necessary for the fulfilment of various objects must be considered at the time of construction. A hall which is used as a ballroom, and which is perfectly safe as such, may be a veritable mousetrap when used for theatrical entertainments. A hall designed only for banquets, public dinners, &c., may become dangerous when utilised for bazaars, with all its temporary stalls and side shows. The building must be designed to fulfil conditions of the greatest possible danger. Of course many hold that we cannot limit ourselves to controlling the erection of buildings, but we must seek to obtain control over their employment and the manner in which they are equipped for its different purposes. No doubt it is just the ordinary drawing-room, the ordinary assembly-room, the schoolroom, &c., which is used for so many purposes for which it is never intended, and that there are many dangers incurred on that account. Such control has been attempted in some Continental countries. But I think such control would be very hateful in these freer isles. We would, I am sure, rather build our houses and halls at once in such a manner as to be prepared for all risks, rather than be constantly worried by inspections and the like. What may be good for a Continental country is not suitable for us. We all abominate anything like perpetual grandmotherly interference. Hence, I say, rather let us at once build suitably for all emergencies. If we do that, we need not be constantly worried. Perhaps even improvement of plan and construction at the outset in a new building appears a very serious matter to you, but think, what does it really mean in nine cases out of ten? A few extra doors, and these so hung as to swing outwards; stair-

cases, perhaps somewhat broader, and not of a dangerous hanging type; hand-rails perhaps on both sides; a few safety bolts or latches. Surely this would not even interfere with

A GREAT ART-ARCHITECT'S DESIGN,

his colour scheme or details, and would this not save us endless worries of control over all private and semi-public entertainments? And now comes the question of provisional buildings erected for some specific purpose, such as a bazaar, and often allowed to remain in position for some indefinite period. Again we find nothing has so far been done or decided so as to minimise danger in these structures—in fact the meaning of a temporary structure has scarcely been defined. Is the large tent, built in the garden of a private residence, or on some verandah, a temporary structure or not in the meaning of the Act? and if so, why are such tents erected with impunity for all manner of social functions throughout the London "Season"? To my mind the less temporary structures are encouraged the better, and this, no matter what their character or purpose. But when erected, let the same importance as to planning and watching be accorded to the provisional building as is essential for a permanent structure. Let us also remember the Charity Bazaar Fire, and let us consistently avoid the flimsy and dangerous materials used for its construction. Why, we can even have temporary iron buildings at a very reasonable expense. Planning and watching should be kept strictly in mind. It is likewise not my wish to enter into details on the question of equipment, for here again the diagrams will show everything that is to be condemned. There is so far, I am aware, little or no regulation as regards such equipment of to-day. The matter has, in fact, scarcely ever been discussed, though an all-important one as far as safety of life is concerned. I do not wish to air personal opinions on the subject of equipment, for it would take a long time to explain the possibilities, probabilities, &c., of the question. If I may be allowed to call attention to any one thing, it is, however, to the fact that whatever the architect may do in any class of building used for entertainment, his efforts can so easily be annulled by flimsy decorations, appointments, equipment, &c.; it is just this so-called decoration, combined with carelessness on the part of the individual, that is the actual cause of most fires. Apart from facilitating the escape of the individual, the architect's efforts are to a great extent limited, as far as the actual fire is concerned; first to avoiding the possibility of an outbreak occurring in connection with the structure proper, and secondly, seeing that should an outbreak occur his structure does not facilitate its spread. The architect cannot prevent a drawing-room or a schoolroom being decorated with bunting, liberty silk, or paper rosettes;

and, as I have said, control in these matters would probably not be advisable in England. He cannot prevent the smoker "lighting up" at his smoking concert, or prevent the use of open lights, and official interference in such matters would be unacceptable to the average Englishman. We can, no doubt, prevent many dangers in the usage of buildings erected for public entertainments. We could and should prohibit the wood stage of the theatre; we can prevent muslin hangings being used in the auditorium, and allow smoking only in specified rooms. But such restrictions would be intolerable and extreme if applied to rooms used for private and semi-public gatherings. It would not be practicable. Thus again, remember we have to deal with certain well-known possibilities of fire with certain given facts, and for these facts you have to provide. The actual misuse of those liberty silks, open lights, muslin, paper roses, in our private and semi-public entertainments, rests entirely with the good sense of the general public. Until the general public boycott them, you will have to take them into account when you are at your drawing-board or superintending your jobs. And now, what is to be the remedy for the present state of affairs regarding safety of life at entertainments and gatherings of different

descriptions? The first and principal remedy, to my mind, as I have already indicated, lies in your hands, as representatives of the architectural profession. It will be the architect mainly to whom we shall have to look for safety—we have to rely on the spirit with which he designs his structure, no matter what the regulations may be. At present, I am afraid safety of life is about the last thing that the designer thinks of. Safe-planning and fire-resisting construction will have to become subjects in the student's curriculum, and the practitioner of to-day must have his attention called to these matters. Secondly, we must depend largely for

IMPROVED PROTECTION

on the general public, who will, to a great extent, sooner or later, have to take upon themselves the rôle of being their own guardians. At present there is not the slightest interest in this country in the question of protection from fire, whether it be in connection with our entertainments or with the fire losses generally. That interest will have to be awakened. The public will have to call for protection, and will have to give protection from fire the same amount of attention which is accorded to safety in travelling, safety of health through sanitation, and safety from social disturbance through police supervision. Whilst the architects on the one hand will be acting as experts and giving the British public safer buildings, that British public will in time see that these buildings are employed for what they were originally intended, and that no unsuitable decoration or equipment is permitted. Such gross mistakes as are now being constantly made will, if I may say so, some day be instinctively avoided. Thirdly, architects and public opinion will have to be supported, their hands strengthened or governed as the case may be, by further legislation, giving the necessary powers to those in authority to intervene when necessary, and laying down the principles that have to be followed; and with new legislation we should also remember that we shall require more officials who will in every way be capable of carrying out its administration, and the execution of any specific code, with tact, knowledge, and sound common sense. Legislation on building matters always requires a certain power of discretion for the officials. We do not want the red-tape automaton so conspicuous in some of the Continental countries. But how are these remedies to be brought about? Of course there is always a considerable literature forthcoming on a subject of this description after every catastrophe. We have had literature enough after former fires, but unfortunately, except for the steps already taken as to theatres and licensed premises both at home and abroad, it has been literature alone. There has been

MUCH WRITING BUT LITTLE ACTION.

It is now time to take action. We do not wish London to be the scene of a calamity similar to that by which Paris has been recently visited. How are we to get the architect in practice to take a little interest in fire protection, not only in its general aspect, but specially in connection with our entertainments? How is the student to be encouraged to take the matter up? How, again, is the general public not only to be interested, but educated? How are our authorities to be assisted in arriving at practical conclusions and regulations, and our officials kept in touch with what is going on in these matters? It is a big question, for I go so far as to say that, in regard to the general public, we should even let the Board School "standard reader" have pretty fables dealing with the dangers of fire, rather than some of the useless stories that appear to-day. Don't think I am proposing anything new. Sweden has long utilised its "standard reader" for impressing matters of importance on the rising generation. We all remember our fables. Surely they would impress on our minds such things as the danger of throwing matches about? I go farther still, and say that the public Press, that great educational factor of to-day, might be induced to give us something more instructive about fires than mere reports of conflagra-

* A Paper entitled "Lessons from the Paris Charity Bazaar Fire" read before the Architectural Association on October 22nd, 1897.

tions, the efforts of our gallant firemen, and the exact number of feet of hose that are taken to a large fire. We might hear more of the origin of fires and the possibilities of prevention. How are we to attain these improvements? Well, to my mind, the right note has been struck at Paris. It has said: "Call together your leading architects and surveyors, your civil and mechanical engineers, your experts in chemical and other sciences. Call together your leading officials, the leading Government and municipal workers, and others seriously and scientifically interested in the technical and economical problems of to-day. Don't forget the leading fire brigade officers nor the owners of warehouses, theatres, and other dangerous property. Combine the many conflicting interests. Don't be afraid of compromise. Avoid onesidedness. Examine what has so far been done at home and elsewhere. Find out what proposals are stowed away in men's minds. Confer. Then act, and act soon. But mind,

NO ONE-SIDEDNESS OR PETTY PREJUDICES.

That is the advice from Paris, where it is being acted upon. Other countries will act on it, too, and I hope Great Britain will be foremost among them. A small start has, in fact, already been made. At the initiative from Paris a small committee has been formed, which is taking up this matter of fire prevention. This is scarcely the place to mention names, but perhaps I may say there are among the members men whom you know and admire. That committee, made up of representatives of the different interests, will soon find a way to help the architect, to see that the general public does not forget the lessons of the Paris fire, and that our legislators have sound independent assistance when required. I hope some of the prominent members of the Association will be among the first to join and help this committee, and thus show that the opposition I first spoke of is not favoured by its leaders of our Profession. It is fire prevention, mind you—preventing fires—that we have most to-day to think of; not putting the fire out when it is there. Let our gallant firemen look after the fire fighting when the fire fiend is actually among us; but let us see that our firemen have as little work to do as possible, and that they are not handicapped to the extent they are at present.—Mr. Richard Roberts, Vice-Chairman of the Theatres Committee of the London County Council, said the County Council, as they all knew, had done considerable work in the direction of fire prevention, and its members had been very ably advised and guided by its permanent officials. Mr. Blashill, the superintending architect, had, in this sense done much. The speaker believed there was a good deal in the suggestion put forward in Mr. Sachs' paper—that with regard to watching and planning; the Council already saw that theatres were properly provided with the necessary number of exits, also that there was a proper site, but there should be

MORE ATTENTION GIVEN TO PLANNING,

and there should be continuous watching. But if our architects of to-day were not alive to risks of fire, how could they expect the general public to be more careful? If they, with all their knowledge and learning as to materials, constantly ran risks, and let others run risks, they must expect the general public would also do so. Speaking again of the County Council officials, we owed a great deal to Mr. Blashill and his assistants, because they continue to press this important point of danger from fire and danger from panic. The officials made their requisitions to a good and high standard. If they were minimised they were not minimised by the action of the officials; it was by the committee. It was the layman who tried to make the requirements for safety less onerous to the property holder. The speaker considered the dangers of temporary structures particularly serious. He was very sorry to see any application for temporary building in London, and the generally accepted practice of the Building Act Committee was never to grant permission for a temporary building except for a

school or religious or philanthropic purpose. The committee did not now grant permission for temporary structures for entertainments, and certainly never for trade purposes. All buildings used for entertainments should be permanent and well built, and he thought architects should set their faces as far as they could against temporary buildings of any kind. The new suburban theatres that were springing up all over London were well constructed and their sites were good. He was not going to say anything about their artistic merits. Let them be charitable, and say that their owners spent so much in better sites and improved construction that they had no money for artistic merits. The County Council could not be responsible for the lack of artistic merit, for its duty was to preserve the lives of the public at all costs, and in this it hoped to be always assisted by architects.—Mr. Sidney Gamble, of the London Metropolitan Fire Brigade, speaking of theatre fires and the advisability of having clear and well-planned corridors and staircases, mentioned the Oporto fire, in which case the people had safely left the auditorium, but unfortunately many either lost their way or got blocked on the staircases and corridors, and were crushed or suffocated there. Mention had been made how architects press upon the local authorities to relax their regulations in relation to fire prevention. He must confirm Mr. Sachs' view that architects often tried very hard to get out of the regulations. Mr. Sachs also mentioned, with regard to the Paris fire, that the glass in the roof went very early. Well, unless he had got definite information upon that point, the speaker very much doubted it. He rather thought that the glass, according to that section, would have stood the fire for a very considerable time. Glass would stand for a long time, unless cold water was thrown on it. If the glass had cleared away in good time it would have been a very good thing, for then the smoke would have got away. There was one point that had not been touched upon, and that was, that many buildings were so altered after being first erected that

THEY BECAME VERY DANGEROUS.

That was one of the firemen's great troubles. Many of these alterations were often done without the authorities knowing anything about it.—Major Fox, in continuing the discussion, said the subject of churches, only casually mentioned by Mr. Sachs, was a very serious one. They all recollected the terrible disaster in Santiago. It would be only fair if churches were examined just as well as other public buildings. If they were to go into the gallery of some of our churches, and notice the length of time occupied in clearing the church, looking at the matter in view of what has taken place in the past, they would at once conclude that a great many people must be hurt in case of panic. Touching on a matter of detail, he certainly agreed with Mr. Gamble that the breaking of the glass was not the cause of extra danger. It would have been better if the glass had gone sooner than it did. The great danger, however, in that building, as Mr. Sachs pointed out, was undoubtedly the velum, and when it dropped on the people's head there was really no hope for them.—Mr. Thomas Blashill said he was of opinion that the public did not take any interest in fire precautions at all; in fact, it did not take the slightest interest in fire until the moment it broke out. The managers connected with our

THEATRES AND MUSIC HALLS

were not by any means the most unfriendly as to fire prevention, though financial consideration made them, perhaps, a little cool when talking about danger. The persons of whom the speaker had greater fear were the persons connected with temporary entertainments—clergymen, schoolmasters, or philanthropic persons who wanted to have a provisional structure with a stage or music for a short time only. They were absolutely reckless; they were a source of danger, and must be stringently dealt with. As to theatre construction, he was very pleased to say that, with the experience of ten years, it was to-day somewhat rare to find a theatre proposed with a

thoroughly bad plan; and it was very rarely that one had to use forcible arguments to obtain the improvement of such plans. Now with regard to the Paris fire, he had said frequently, that to the architect and to a really practical man, conversant with the subject of fire protection, the Paris fire conveyed no lesson whatever. The Paris fire was the outcome of the greatest combination of improper reckless proceedings that he had ever met with in the course of his life; and yet that fire would have to be an object lesson to a vast majority of professional men, not to speak of the public. In conclusion Mr. Blashill said: There is one word I should like to have with architects. Young architects here will forgive me if I address my remarks to them. Suppose they come to the offices of my Council and try to over-persuade me to do that which I do not think they ought to be allowed to do; suppose they pursue the matter to the committee, and get the members to think that the requisitions are very hard. In what position would the architect be if it came to an inquest? He would be in

THE POSITION OF THE PROFESSIONAL MAN

who, contrary to advice, had put his approbation upon this scheme. Now, I think it is very unfair for men, who do not intend to take any responsibility themselves, to be perfectly satisfied when they get a council or committee in their favour, and to consider themselves exonerated in case of disaster.—Mr. William Archer, the dramatic critic, said the West End theatres are mostly old theatres placed on more or less inconvenient sites. He hoped the London County Council was looking to the sites as well as to the building of theatres. Undoubtedly, theatres would be set away in holes and corners so long as ground-rent was so great, and there would always be difficulty in acquiring proper exits. No one had any confidence in the emergency exit or extra exit. He saw at almost every theatre "extra exits in case of need," or "emergency doors," but he never saw these doors open, no one uses them, the emergency not having arisen, of course. But he would like to feel that these doors could open in cases of emergency, and it seemed to him that a regulation which might be very well enforced would be that these doors were really open every evening. Of course it was a very happy thing in a way that people were so unimpressible and did not realise the dangers which they ran. Perhaps it would be even better that there should be an occasional loss of life than that they should go about shaking in their shoes because they were afraid of fire, but that was no reason whatever why every possible means should not be taken to prevent the occurrence of fire, and to facilitate the escape of the public in case of fire.—Captain Dyson, of the Windsor Fire Brigade, was the next speaker, and following him came Mr. Lovegrove, who, in proposing a vote of thanks to Mr. Sachs, said, as to places of entertainment, what they could primarily do was to provide proper exits, and he was glad to say that plans now submitted were very much better than those presented some years ago.—Mr. Max Clark, in seconding the vote of thanks to Mr. Sachs, entirely disagreed with him as to the position which he said the architect took up. Then, continued Mr. Clark, Mr. Sachs advocates the view that good planning is to be given preference to fire-resisting construction. To my mind it is, however, of the greatest importance to use everything that it is possible to use of the fire-resisting materials. Remember, nearly all the great fires we speak about have been in

BUILDINGS OF AN INFLAMMABLE NATURE.

Most of the theatres in which we had fatal fires had much timber-work, and such timber in a theatre soon becomes highly inflammable, owing to the heat. Referring again to building materials, I hold that no part of the construction of a theatre in the future, not even the roof, should be of wood, and that only materials should be used which prevent the flame from spreading rapidly. As to details. We have heard some remarks as to glass not breaking so rapidly under heat as some people think. May I ask, then, why the fanlights over our

stages are ordered to be glazed. They are intended to break and let the smoke out. With regard to the velum, are we never to have a velum any more, is it not possible that these sheets so that they will not burn? Because if it is not, the sooner they are removed the better. But I think there are several chemical preparations which would prevent their burning, and I would call your attention to chemical preparations which are so generally neglected. Referring again to public opinion, let us remember we have to-day not only to think of the public mind, but also of the state of the Press mind. I have here a cutting from a leading morning paper, and a typical phrase is, "One of those hideous things known as

IRON CURTAINS

has been dispensed with, as the arrangements for checking fire are perfect and complete." Now surely that is impossible. There is not a theatre in London where the arrangements for checking fire are absolutely complete. Speaking of iron curtains, what the County Council ought to do is to provide some sort of fire partition between the stage and auditorium, so that if a fire breaks out on the stage the public may be protected. In new theatres no doubt this is already compulsory, but the old theatres want it most.—The Chairman in the course of his remarks said as to improvements in the safety of our semi-public and private entertainments:—I hold that there is no doubt that the careful watching of the premises is one of the best precautions to take. You may have a building which is badly planned, but if it is thoroughly well watched, much of the risk is at once done away with. Mr. Sachs has drawn our attention, as architects, to the necessity of better planning, and he has done us a good turn, and the public a good turn. No doubt, if we were to think a little bit about the dangers from fire and from panic, we might be induced to consider our exits and our passages more carefully. I am not speaking more particularly of theatres, but of all buildings, including dwellings, and I am very glad that churches have been mentioned, because there is a considerable amount of risk in our places of worship. Perhaps I should say, however, that in planning our buildings well, so far as rapid exit is concerned, it is not fire we have got to plan against, but panic. As to the remarks Mr. Clark has just made; there is no doubt even if we have a well-planned building, we have not attained all that we ought to do as architects, but architects are paying some little attention to fire-resisting materials, whilst safe planning seems to be overlooked.—The vote of thanks was carried and acknowledged by Mr. Sachs.

The foundation stone of the new Parish Hall and Institute of St. Mary's, Bryanston Square, was laid recently.

The ceremony of opening the new Art Gallery, adjacent to the municipal buildings, at Reading, together with the opening of the new portions of the Free Library and Museum, took place a week ago.

A new Wesleyan chapel, built at a cost of £7000, which sum includes the cost of the site, was opened on Thursday week at Exmouth. The chapel will hold 612 persons. It is built in the Gothic style, with a tower 90ft. high.

It is stated that the presidency of the Royal Society of Painters in Water-colours, vacant by the death of Sir John Gilbert, R.A., has been offered to Mr. Alma-Tadema, R.A., and then to Sir Edward Burne-Jones; but each of these artists has found himself obliged to decline it. It is believed that the choice of the Society will ultimately fall upon Mr. Hubert Herkomer, R.A.

OBSERVATIONS have lately been made in America concerning the effect of the rays of a very hot sun on the tallest structures. The top of the Monument at Washington, which is 555ft. high, and weighs 81,720 tons, was ascertained to move 4in. to the north. The Obelisk at Central Park, New York, which is a single block of stone, deviates a trifle more, while the Bunker's Hill monument only gets about 2in. out of the perpendicular.

Professional Items.

BELFAST.—The Shankhill Road Mission Buildings, the foundation stone of which was laid recently, has a frontage of 92ft. and a depth of 135ft., free from ancient light restrictions on every side. In designing the building, it was sought to avoid the long corridors so universal in buildings of this description, by designing a central octagonal hall, with galleries round and a large dome light. This hall will give access to all the departments of the building which radiate from it. The building is divided into seven principal departments. The first of these is a large hall, capable of seating about 2000 people, designed in the form of an amphitheatre with a single gallery. This hall will have entrances and exits from the Shankhill Road and also from Carlow Street, and will be well lighted. In connection with the hall are gentlemen's, ladies', and choir committee rooms and cloak rooms. The second is a medical mission department, comprising a large waiting hall, capable of seating about 200; a doctor's consulting-room, and dispensary and dressing-rooms. It is entered by the main entrance from the building, and will also have a separate entrance from Carlow Street, enabling it to be used directly from the outside. The third, or business, part of the premises will consist of four large shops—two on either side of the main entrance—and also commodious offices over these shops. The fourth is a soup kitchen department. The fifth section comprises a minor hall and class-rooms. This hall will be situated on the first floor, and capable of accommodating 250 people. There will also be several class-rooms and committee-rooms. The sixth is a social and recreative department. These rooms will be situated on the second floor, and will comprise general workers' parlour, mens' reading-room and library, boys' club-room and girls' guild-room, and also ladies' private sitting room and bookstall. The seventh department is the residential training home. Over a part of the building there will be a flat roof, with staircase communication, so that it can be used as a recreation ground in the summer months. The materials proposed in the construction of the building are Scrabo stone for the front elevation and part of the return, with red brick for the remainder. The roof will be covered with Westmoreland green slates for the tower and front part of the building. The steel work for the large assembly hall is being carried out by Messrs. R. Moreland and Son, London. In order to give as light an appearance as possible to the building and cover the large span of the hall 90ft. in diameter, one row of steel columns has been arranged, which will also support the gallery, giving a cantilever for the three front rows of seats, and the roof trusses will be in the cantilever form, also with the lower end tied down by long bolts through the walls to bed plates in the foundations and the upper end of the trusses supporting the large central dome light. The N.A.P. Window Company's patent fittings are being adopted for principal windows. There will be fireproof doors over the greater part of the first two stories, thus making the building not only more secure, but preventing the passage of sound from one part to the other. Mr. W. J. W. Roome is the architect, and Messrs. McLaughlin and Harvey are the contractors.

BLAENAU FESTINIOG, NORTH WALES.—In an open competition for the New County Police Buildings, the design of Mr. T. Taliesin Rees has been selected. The accommodation had to include charge-room, cells, magistrate's room, court-room, solicitors' room, witnesses' room, superintendent's office, etc., together with the inspector's residence. There were nineteen sets of plans sent in.

HUDDERSFIELD.—The new infants' school in connection with Rashcliffe Church School was formally opened on Saturday week. The school is situate in St. Stephen's Road, opposite the church, and is Gothic in design, in consonance with the church. It contains a

central hall, 31ft. 6in. by 24ft., and two class-rooms, providing accommodation for thirty children each, and a room for fifty children. The principal entrance is from Bland Street. All the internal joiners' work is of pitch pine (varnished). The school is heated with hot water on the low pressure system, and all the rooms are airy and well ventilated. The plans have been prepared by Mr. J. Berry, architect, 9, Queen Street, Huddersfield, and the works have been carried out by the following contractors: Masons, Messrs. B. Graham and Sons; joiners, Messrs. Hampshire and Armistage; plumbers, Messrs. Sanderson Brothers; plasterers and slaters, Messrs. T. Longbottom and Sons; painters, Messrs. Haigh and Shaw; concrete and stone macadam asphalters, Mr. John Cooke; movable partitions, Mr. John Stones, Rosside, Ulverston; heating engineers, Messrs. Calvert and Co.

KINNEFF.—Some time ago the Northern Lighthouse Commissioners resolved to erect a new lighthouse on the rugged and dangerous Kincardineshire coast. The site selected is on the east point of the farm of Hallhill, in the parish of Kinneff, about 150 yards inland from the projecting rock or headland known as the Tod Head, from which the new lighthouse will take its name. Operations were begun in the end of February, 1896, and the tower and other buildings connected with it are now nearly finished. Although the buildings are erected a short distance from the top of the cliffs, it was necessary to go down 22ft. before a solid foundation was got for the tower. The foundation is made up of concrete to about 2ft. above the level of the ground. From the ground to the dome on the top of the tower is over 50ft., and the dome is 150ft. above sea level. There is about 10ft. of glass at the top, surmounted by a copper dome with raised top, which gives it a very pleasing appearance. Besides the tower, a block of buildings two stories in height has been erected for dwelling-houses for the keepers. There is ample accommodation for three families, also engine-room for three engines. The whole of the buildings are of very substantial workmanship. The foundations are concrete, the walls being built with bright facing bricks outside and common bricks inside, and the doors, windows, rybats, &c., are of freestone from Brechin quarries. The roofs are all flat, being covered with strong iron beams and buckle plates covered with a heavy coating of cement. There are also two large concrete tanks for storing rain water off the houses, for the engines, &c.; while the whole buildings are enclosed with a substantial brick wall. The contractors are Messrs. Watson and Sons, Glasgow.

LONDON.—The important extension of St. Stephen's National Schools, Westbourne Park, which were opened on the 30th ult. by the Right Rev. Mandell Creighton, D.D., is designed to incorporate the existing building so as to form one large school, equipped with all the improvements of modern school buildings so far as a close study of cost would allow. The site is a fine open one on a broad street with the immense area of the Great Western Railways goods yard in front, so that the school buildings are visible at a long distance, and enjoy both light and air to an unusual extent. The new scheme divides the children into three isolated divisions on different floor levels with separate entrances and staircases. It supplies the great want of class-rooms in addition to the old school-rooms, the idea being to have in addition to their school-rooms as at present one infants' class-room and three class-rooms for boys and girls respectively. The scheme also gives a cloak-room to each department, whereas in the old buildings there was no proper provision for this purpose, besides which a separate playground is now allotted to each school, where formerly all had to use one small courtyard in common. Lastly, the lavatories are now all outside instead of inside the main buildings, and are now upon the proper scale, whereas before they were inadequate in number and very unwholesome. In view of the above defects the old buildings were about to be condemned by the Educational Department, being moreover very much

overcrowded in all schools. Part of the scheme has been postponed for the present, but the actual increase in the numbers of places provided will more than double the former accommodation. The new extension occupies the site of three houses which were purchased for the purpose and pulled down, the frontage of the schools being thus doubled. The distribution is as follows:—The basement is used for parochial purposes in connection with the adjoining house; half of the ground floor provides a small school-room 24ft. by 30ft., the remainder is occupied by the new girls' and boys' separate entrances and staircases, as well as by the cloak-rooms for both departments; the first floor gives two large classrooms for sixty children each, while the second floor is the same except that here the two rooms can be thrown into one by means of a folding partition. The schools are lighted throughout by electricity, and are probably one of the first of the National schools to be so lighted. This work has been executed by Mr. W. Mackie. The building has been very well built by Messrs. Rudd and Son, of Grantham, under the personal supervision of the architect, Mr. Arthur T. Bolton, of 2, The Sanctuary, S.W. The cost has been about £7000, including the site, which cost £2000. The general contractors are Messrs. Rudd and Son, of Grantham, the other firms engaged are:—Masonry, Monks Park stone, the Bath stone firms; red moulded bricks in chimney stacks, Messrs. Wheeler, Reading; brick facing special picked stocks, Messrs. Broad and Company, London; Imperial green slating, Messrs. Roberts, Adlard, and Company, London; fire-proof floors and staircases, Messrs. Ward and Company, London; woodwork flooring, Messrs. Turpin, London; plumbing, Messrs. Lincoln and Sons, Grantham; school sanitary fittings, Messrs. Adams and Company, London.

NEW BENWELL.—The foundation stone and memorial stones of the new Presbyterian Church of England at New Benwell were laid last week. The church is being built on a block of land in Armstrong Road. The hall occupies the eastern portion of the site, and between the church and hall the class-rooms and vestries are placed. The church is planned with nave and aisles, the aisles and west end having galleries, the whole providing seating accommodation for 650. The entrances are placed in the west front, giving access to porch and vestibule. Two doorways at the east end give access to the vestries and class-rooms, and also answer as a means of exit when required. The floor of the church has a fall of 9in. in the length; the pulpit and communion platform are at the east end, and the west gallery has been reserved as the organ chamber. On the same level as the church, and immediately behind, are placed the minister's vestry, a room for ladies, and a small hall for prayer meetings, and infants' class, and a flight of short steps leads to the large hall, with accommodation for over 400, the principal entrance to which is in Armstrong Road. The first floor over the vestries is occupied by three large class-rooms, and there are ample and well-lighted lavatories on all the floors. The whole of the block of buildings is designed in the Early English style; the walling is of local stone, in coursed rock facing, with chiselled stone dressings, the bays of the nave having buttresses at every principal, and the alternate bays having the upper windows carried up as dormers. The west front has two projecting porches with mullioned and traceried window in gable over the same, and to the north a small octagonal turret breaks the line between the gable and staircase roofs, a buttress marking the southern division. Internally, the nave is divided from the aisles by an arcade of five bays on either side, and the east gable has a traceried rose window. The church and hall, including vestibule and staircases, are to be heated by the low-pressure hot water system. Previous to letting the contract, the architects had trial holes dug on the site, and found it necessary to go down about 16ft. all along the west front to secure a suitable foundation. To overcome this difficulty concrete piers were carried down to the necessary depth, the spaces between being bridged with concrete blocks about 4ft.

wide and 2ft. thick, in which rolled steel girders are embedded to strengthen the concrete and tie the piers together. The whole of the foundations throughout are of Portland cement concrete, and are taken down to the clay. The architects are Messrs. Bradenoch and Bruce, and the contractor is Mr. Thomas Hunter.

ST. LEONARDS.—St. Peter's Church was built from the design of Mr. James Brooks. The superb reredos that now adorns the eastern end of the sacred edifice was not erected until 1895. The somewhat unique representation of the crucified Christus in white marble that forms so striking a feature in this finely-conceived reredos is an exact copy of the very earliest representation in existence of our Lord's Passion. It is a *fac-simile* of the celebrated *Vultus de Luca*, or Crucifix of Lucca, in the cathedral in that city of the sunny south. Legend declares it was the work of Nicodemus himself, who is recorded to have been a cunning worker in wood and metals. Certainly it was in the cathedral so long ago as A.D. 782, and has been piously adored by the faithful from those far away days until the present time. Recently a couple of handsome carved oak screens have been erected at the north-eastern end of the church. Like the sacred fane generally, they have been designed of early character by Mr. Mark J. Lansdell, of Hastings. They are fashioned of well-seasoned Kentish oak, and are capital specimens of modern craftsmanship in that particular everlasting material. Like the reredos, they are the handiwork of Messrs. Hems and Sons, of Exeter.

Views and Reviews.

PRACTICAL BUILDING CONSTRUCTION.

We are glad to welcome the appearance of a second edition of Mr. Allen's well known and excellent book on Construction, which has now taken a recognised position, and is to be found in the collection of most younger students as well as on book shelves of many older men. Though there are several other similar books on the market, prepared, as is this, mainly for the use of students who are working for the South Kensington examinations, and all, consequently, upon much the same lines, this is equal to any of them and superior to most in clearness of illustration, avoidance of unnecessary matter, and simplicity of arrangement, which leads students on to think for themselves rather than to fly to their books upon all emergencies. Possibly there is still an opening for a work upon Construction which is written from the architect's point of view, and including other than elementary problems, to show how unusual difficulties have been met, and thus to assist the student to solve difficulties for himself without falling back upon hackneyed and possibly unsuitable methods. There is always a tendency in works of this class to repeat undesirable forms of construction upon the authority of their predecessors, and the author of this book will pardon us if we point out that he has been guilty of this in two instances at least. The methods of bonding shown in Figs. 181 and 182, with the assistance of shaped bricks, are such as would be most unlikely to be adopted in practice, and the wisdom of carrying rain-water down the interior of a column as shown in Fig. 449 is more than doubtful. On the other hand the chapter upon fireproof floors, though short, is eminently satisfactory and up to date; but we fancy that the chapter upon sanitation would have been almost better omitted, it is treated in so vague a manner, just imparting that little knowledge which is dangerous, and the two chapters upon stresses and the calculations of strains are clearly put, though the diagram would have been rendered much more easier of comprehension if Bow's notation had been adopted. We can only hope that further editions of the book will be called for in the future, and that it will be steadily extended and improved as time goes on.

"Practical Building Construction." By J. P. Allen, Crosby, Lockwood, and Sons, 7s. 6d.

Enquiry Department.

WAREHOUSE FLOORS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly inform me through your "Enquiry Column" whether sea sand, used in the making of concrete for warehouse floors, would be a cause for such floors being damp, although two years have passed since same were laid?—Yours truly,

"BETON."

Liverpool, October 25th, 1897.

You do not say whether the floor is a ground one or not, but if a fireproof floor the use of sea-sand in the concrete is undoubtedly a sufficient cause for the dampness, and it may be proved by observing the difference in appearance after dry and damp weather. If the concrete is on the ground, other causes may also exist; the surface drainage may be imperfect, or the bed may be of unsuitable material. For a damp site the concrete should be bedded on 6in. to 12in. of brick rubbish well rammed (this will absorb much of the surface damp); next flout a layer of granolithic cement, then the concrete, made with well-washed river or pit ballast and Portland cement (five to one). If the cause is salt in the sand, your only remedy will be to re-lay.

GLASS CHIMNEYS.

DEAR SIR,—Can you kindly inform me through what merchants I can buy "Acme" lead flint glass chimneys for incandescent lights. They are made in the United States of America, and the trade-mark etched on each chimney is "Trade Mark—Acme—Lead Flint," and are wrapped in pink printed paper.—Yours truly,

M. A. THORNTON.

Messrs. Young and Marten, before whom we laid our correspondent's query, have written us as follows:—"As a result of repeated enquiries, we have discovered the manufacturers of the glass chimneys referred to, and, having satisfied ourselves that they are a good saleable article, we have contracted an agency for the sale of them, and a stock is now shipped, and on the way to us; in the course of a few days, we hope to be in a position to supply."

WORKSHOP PLANNING.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—May I ask whether you can give me any advice in the following matter:—Wanted to erect workshops for (1) carvers and (2) carpenters and joiners, on the most modern principles as to light and dimensions, etc. Can any of your readers refer me to an example erected recently, or do they know of any book published on this subject?—Yours truly,

PROVINCIAL ARCHITECT.

October 25th, 1897.

In planning a joiner's shop, due regard must be paid to the question of the kind of benches employed—double or single. A single bench, accommodating one man, is 27in. wide, with a 21in. walk. A double bench, for two men, is 36in. wide, with a 36in. walk. The double cover the more floor space, provide for the more men, but require lighting at both ends, and are cumbersome. Workmen generally prefer single benches. A top light is best, and should be provided by lifting skylights over the front ends of benches. If side lights are used, the heads should not be less than 5ft. above the bench, and the sill 1ft. above; lower is dangerous. Upper sash to open on centres, or hopper ventilators. Factory Act (1895) requires 250 cubic feet of air space per man; 400 cubic feet of artificial light is used. Queen-post roof is best; the centre can be used for storing and drying timber. Use queen bolt and strut, butting straining beam and principals. Gas brackets to be T pendants, with universal joint. Provide a louver ventilator in roof, and a hood over glue stove for escape of steam. Heat with two 4in. coil pipes, cased with perforated wood. Have no machinery in shop or on same floor except grindstone; its presence is fatal to high finish. A platform under cover should be provided for carpenter's

containing 150 square feet, to set out, and frame trusses, framings, centres, &c. A wood carver's studio requires a north light, preferably at the end of the benches or overhead; benches to be as long as possible, 3ft. wide, 3ft. high, framed with 3in. beech tops, a few stout legs, no rails. Two good shops recently erected are the Works Department, Postal Telegraphs, Mount Pleasant, Clerkenwell; and Messrs. Brass and Co.'s, at Page Street, Westminster. We know of no books on the subject.

THE WINTER SESSION.

MONUMENTS AT GLASGOW.

THE Glasgow Ecclesiastical Society met on Tuesday week in the Cathedral, Mr. John Honeyman in the chair. A paper was read by the Rev. P. McAdam Muir, D.D., on the "Monuments and Inscriptions in the Cathedral." He dwelt upon the interesting fragment of a recumbent figure under one of the arches dividing the chapels of the crypt, now recognised as meant for Bishop Wishart, the "fighting bishop" of Robert the Bruce's time, but long considered to be an effigy of St. Mungo. Another interesting monument to which he called attention was that of Archbishop Law, in the south-east corner of the choir, who died in 1632, and whose virtues are commemorated in a Latin inscription, a translation of which was given. In Blackader's aisle the initials J. D. with the date 1658 are scratched upon the east wall, and this is supposed to be the only memorial of James Durham, the covenanting minister of the Cathedral, during the years when the Covenant was dominant in Scotland. Durham had the felicity of preaching before Cromwell, and though he did not spare that enemy of the Covenant, he was highly complimented by the Protector, who remarked to his daughter, who sat beside him, that he was fit to be chaplain to any of the princes of Europe. Dr. Muir then proceeded to give an account of the more modern monuments, of the colours that are preserved in the Cathedral, closing his list with the memorial of the late Dr. Burns. The lecture, which was most interesting, was listened to with great attention, and Dr. Muir was cordially thanked for the lucid manner in which he had treated his subject. In the course of the discussion it was remarked that something might be done to commemorate those men of marked distinction whose names are connected with the Cathedral of whom no memorial exists.

"OPEN ROOFS."

The opening meeting of the winter session of the Architectural Association of Ireland was presided over by Mr. R. Canfield Orpen. Mr. Pentland delivered an interesting lecture on "Open Roofs," in the course of which he gave an outline of the history of house construction in ancient times, dealing in a concise manner with the various styles adopted by the Pelasgians, Etruscans, Romans, and others, and explaining the differences between each and their analogy, in some instances, to modern buildings. The expression, open roof, he said, was not an euphemism, but meant that houses and other structures were made with roofs which were not covered by a ceiling. He gave some interesting particulars concerning Italian Architecture, dealing shortly with the construction of the domes on ancient buildings and modern European cathedrals. He referred to the flat-roofed houses of the Syrians, and their resemblance to those of modern structures, as also the climatic effects on Architecture. We hope to publish the paper in extenso shortly, with illustrations.

THE largest railway arch in the world is stated by Mr. Supplee to be that spanning the river Pruth at Jaremeze. It is built of stone, and has a span of 65 metres or 213ft., and a central height of 17.9 metres or 58.6ft., measured at high-water level. There is a still larger arch in America, the Cabin John Arch, near Washington, with a span of 220ft., but this only carries an aqueduct, and is therefore not comparable with one subject to stresses produced by the motion of trains.

Trade and Craft.

EXHIBITION IN TURNING.

The twenty-eighth annual exhibition of specimens of turning in wood and pottery, under the auspices of the Turners' Company, was opened last week at the Mansion House, by permission of the Lord Mayor. The exhibits in wood are small in number, owing, it is stated, to the great activity in the turning trade, but the judges report that "the excellent quality of the work is generally maintained;" and they express their satisfaction at the increase in the number of the apprentice competitors. The pottery exhibits are stated by the judges to be "probably as numerous as they have ever been," but the opinion is expressed that "in point of merit they scarcely come up to the standard of five years ago." The judges of the exhibits in wood are Messrs. Burdett-Coutts, A. Bevan, A. Murray (City Surveyor), George W. Budd and G. W. Taylor; and the judges in pottery are Messrs. W. Brindley, W. Rome, A. S. Murray (British Museum), and Lieutenant-Colonel A. J. Copeland. The first prize in the wood exhibits—which has been awarded to Mr. F. Powers, Eastfield Road, Andover, for a rose window, or centre flower, in oak, constructed of four pieces of turning—consists of a silver medal, the freedom of the Company, and, subject to the consent of the Court of Aldermen, the freedom of the City of London, and five guineas. The first prize in the apprentices' class has been gained by L. G. Seegar, of Lynedoch Street, Kingsland Road; and in the amateurs' class, first certificates of merit have been awarded to Mr. S. A. Harding, Ingelwood Road, West Hampstead, and to Mr. W. H. Lowndes, of Church Street, Aylesbury. In the pottery exhibits the first prize—which is precisely similar to the first prize given in the wood exhibits—has been gained by Mr. S. Stocks, Upper Kennington Lane, for a terracotta vase thrown in one piece. The first prizes in the apprentices' classes have been awarded to Arthur Newman, A. Kerridge, E. B. Martin, John Lovekin, and F. W. Millward. The Rev. Charles C. Ellison exhibited—but not for competition—a beautifully worked tobacco-box in ivory.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERAVON.—For the erection of eleven houses and offices. Messrs. Thomas & James, architects, Port Talbot:—
John Davis ... £1,675 John Nicholas ... £1,368
S. Rees and Co. ... 1,393 Jenkin Rees, contractor,
C. and F. Gaen ... 1,385 Sandfields, Aberavon* 1,365
* Accepted.

ABERDEEN.—Accepted for the erection of a fire station, for the Town Council. Mr. A. H. L. Mackinnon, architect, 75, Union-street, Aberdeen:—
Masonry.—Alexander Cheyne, Aberdeen ... £6,850 19
Carpentry.—George Jamieson, Woodside ... 2,100 0
Ironwork.—John Grant, Aberdeen ... 476 6
Slating.—Adam and Co., Aberdeen ... 251 0
Plastering.—Stewart and Co., Aberdeen ... 708 10
Plumbing.—A. B. Robertson, Aberdeen ... 519 0
Painting and Glazing.—Edward Copland, Aberdeen ... 167 0

BARKING.—For the erection of Public Baths at the rear of the Public Offices, East-street, Barking, Essex, for the Urban District Council. Mr. C. J. Dawson, architect, Barking. Quantities by Mr. Geo. Lamb, Barking:—
Cliff Ford ... £9,490 F. J. Coxhead, Leyton-
Geo. Sharpe ... 7,813 stone* ... £7,686
* Accepted subject to variations.

BECKENHAM.—For making-up Kent House Road, for the Beckenham Urban District Council. Mr. John A. Angell, engineer and surveyor:—
J. Jackson ... £2,822 0 0 S. Hudson, Street-
Fry Bros. ... 2,016 17 10 ham Hill, Street-
J. Mowlem & Co. ... 1,928 0 0 ham, S.W.* ... £1,857 9 1
G. Iles ... 1,905 0 0 Lawrence and
Thacker ... 1,570 14 9
* Accepted.

BIRMINGHAM.—For erecting a new epileptic block at the Workhouse Infirmary, for the Guardians. Mr. W. H. Ward, architect, Paradise-street, Birmingham. Quantities by Messrs. Harris and Harris, Bennett-hill, Birmingham:—
W. S. Seamark ... £2,385 0 0 B. W. White-
H. Vickers ... 2,828 0 0 house and Son ... 2,632 0 0
E. Hughes ... 2,311 0 0 J. Freeman and ... 2,617 0 0
W. Hopkins ... 2,770 0 0 Son ... 2,613 0 0
W. Bloore ... 2,760 0 0 W. Robinson ... 2,560 0 0
W. and J. Webb ... 2,691 0 0 F. Nicholson ... 2,485 0 0
W. J. Whitall ... 2,670 0 0 J. Atkinson ... 2,390 0 0
and Son ... 2,653 0 0 Smith and Pitts ... 2,383 6 2
J. Goodwin ... 2,653 0 0 R. Fenwick, Bir-
mingham* ... 2,367
* Accepted.

GLACTON-ON-SEA.—For the erection of three shops and residences at the corner of Station-road and Carnarvon-road, for Mr. T. Rowland. Mr. J. W. Martin, architect:—
E. West ... £3,270 H. J. Linzell ... £2,766
Myall and Ellis ... 2,850 T. Dixon ... 2,607

CHINGFORD.—For the construction of roads, and stone-ware sewers with manholes and gullies, &c., on the Chingford Rise Estate, Essex, for Mr. Douglas Gordon MacBae. Messrs. Douglas Young and Co., surveyors, of 51, Coleman-street, London, E.C.:—
W. Gibbs and Co. £5,800 13 3 Thomas Adams £3,263 0 0
N. Neave & Son ... 3,985 0 0 W. and G. French
A. W. Porter ... 3,655 18 6 Buckhurst-hill* 3,150 0 0
Lawrence and Thacker ... 3,646 17 6
* Accepted.

COVENTRY.—For additions to Board Schools, Red-lane, for the School Board. Messrs. G. and I. Steane, architects, 22, Little Park-street, Coventry. Quantities by Mr. Geo. Kenwright, Birmingham:—
T. G. Golby ... £8,100 C. G. Hill ... £8,145
T. Rowbotham ... 9,022 J. Isaac and Sons ... 8,059
E. Orton ... 8,850 Kelley and Son ... 7,640
A. A. Winnett ... 8,675 J. Corvett ... 7,575
C. Haywood, jun. ... 8,635 C. Garlick, Coventry* 7,400
C. H. Barber ... 8,175
* Accepted.

HERTFORD.—For headquarters and drill hall, for the Hertford Detachment of the 1st Herts V.B. Bedfordshire Regiment. Mr. J. Farley, architect, Old Cross, Hertford:—
J. Rayment and Son £2,062 8 Ginn and Son,
J. Birt ... 2,068 0 Hertford* ... £1,748 10 0
H. Norris ... 1,984 0 A. Scales ... 1,695 8
T. Hunt ... 1,761 0
* Accepted.

HULL.—For pulling down existing premises and erecting new dormitories, day-rooms, bath-rooms, &c., and mortuary, &c., at the Workhouse, Anlaby-road, for the Governor and Guardians. Messrs. Freeman, Son, and Gaskell, architects, 11, Carr-lane, Hull:—
Mark Harper ... £3,307 15 0 J. R. Woods* ... £3,030 14 9
Thos. Goates ... 3,254 16 5
* Accepted.

[Several single tenders were received.]

KIRKBY LONSDALE.—Accepted for alterations and additions to the "Royal Hotel," Kirkby Lonsdale, for Lady H. B. Centinck. Mr. John Kassell, architect, Kirkby Lonsdale:—

Masonry, Bricklaying, Plastering, and Slating.—William Bailiff, Kirkby Lonsdale ... £1,006 2 3
Joinery and Carpentry.—Timothy Hirst, Keighley ... 870 0 0
Ironfoundry, Plumbing and Glazing.—Anthony Moorhouse, Kirkby Lonsdale ... 278 15 0

[Architect's estimate, £1,670.] ... £1,654 17 3

LONDON.—For painting and repairs at the undermentioned fire stations, for the London County Council:—

Camden Town Station.
A. D. Smith and Sons £90 0 J. W. Meller ... £85 10
A. Hackworth ... 89 0 Pease and Kentish* ... 85 0
Macfarlane Bros. ... 88 5

Brompton Station.
G. N. Watts ... £33 0 C. F. Kearly* ... 49 0
Lole and Lightfoot ... 57

Cherry Garden Street Station.
L. Whitehead and Co. ... £110 H. Line ... £98 0
H. Cooke ... 105 G. Parker* ... 95 0
Tunbridge and Day ... 99

Hackney Station.
J. Outhwaite & Sons £206 0 A. D. Smith and
F and F. J. Wood ... 198 0 Sons ... £127 0
Hearle and Farrow ... 150 0 Vigor and Co. ... 125 10
W. Newman* ... 113 17

Deptford Station.
H. Cooke ... £86 13 Tunbridge and Day ... £50 0
L. Whitehead and Co. ... 79 0 H. Line* ... 43 0
G. Parker ... 59 0

Waterloo Road Station.
H. Cooke ... £94 15 J. Mills ... £77 0
T. Laphorne and Co. ... 84 0 R. Harding and Sons ... 76 10
G. Mundy and Sons ... 82 0 D. G. Laing and Son* 70 0
* Accepted.

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LONDON.—For alterations and new saloon bar to "The White Hart" public-house, 199, Tottenham Court-road, W.C., for Mr. Chas. Scullard. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.—
 Antill and Son £915
 Voller 889
 Marchant and Hirst 873
 [Architect's estimate, £800.]

LONDON.—For additions to "The Bunch of Grapes," No. 45, Strand, for Messrs. Anstiss and Son. Messrs. Wylson and Long, architects, 16, King William-street, Strand—
 Benham £2,404
 Elliott 2,206
 Hanley 1,890
 Kirk and Kirk* £1,885
 Richards (withdrawn) 1,580
 * Accepted.

MIDDLESBROUGH.—Accepted for the erection of a shed at the workhouse, for the Union Guardians. Messrs. R. Lofthouse and Sons, architects, Middlesbrough—
 Allison Brothers, Middlesbrough £751

MITCHEAM.—For erecting stores and boundary walls on land near Chapel-road, Mitcham, for Mr. William Hollis. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.—
 Bulled and Co. £1,300
 Lawrence 1,066
 Bullock, Croyden* £974
 * Accepted.

NORTHFLEET (Kent).—Accepted for the erection of additional cement kilns for Messrs. Robins and Company, Limited. Messrs. Wylson and Long, architects, 16, King William-street, Strand—
 Kirk and Kirk, Westminster £5,000

ORPINGTON.—For decorative repairs to the Village Hall, Orpington, Kent, and for repairs to other properties. Mr. St. Pierre Harris, architect, &c.—
 Frank Giles and Co. £248
 W. R. Taylor 197
 * Village Hall only.

R. A. Lowe* £125
 Somerford and Son† 154
 † Accepted.

ORPINGTON.—For the connection of drains of six private houses at "Crofton," Orpington, Kent, with the new sewer. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington—
 W. R. Taylor £377
 J. Smith 284
 W. Duthoit 260
 S. D. Grady £243
 Somerford and Son 230

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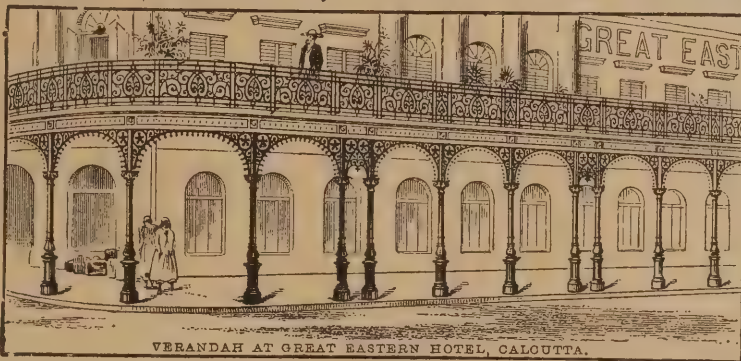
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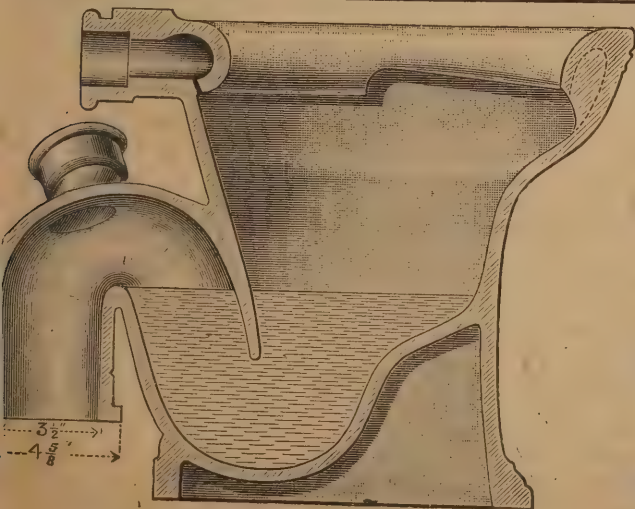


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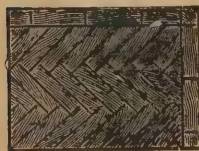
RUGBY.—For the erection of store buildings, New Bilton. Mr. J. T. Franklin, architect, 40, Bridget-street, Rugby:—
 Foster and Dicksee £1,595 0 Sturgess and Son ... £1,461 18
 Harris ... 1,590 0 Hopkins ... 1,453 0
 Satchell ... 1,480 0 Young, Rugby* ... 1,440 0
 Hollawell ... 1,462 12 *Accepted.
ST. MARY CRAY.—For repairs to private residence at St. Mary Cray, Kent. Mr. St. Pierre Harris, architect and surveyor:—
 Davis and Leaney ... £275 0 Somerford and Son ... £204 0
 R. A. Lowe ... 209 0 W. R. Taylor ... 189 0

SALISBURY.—For the erection of a sorting office near Salisbury Station, for the Commissioners of H.M. Office of Works. Quantities by Messrs. Welch and Atkinson, 10, Lancaster-place, Strand:—

	Allowance for old materials.
George and Harding ...	£3,294 0 0 ... £55
Webb and Co. ...	3,120 0 0 ... 65
G. H. Tucker ...	2,912 0 0 ... 175
Wort and Way (accepted) ...	2,904 17 0 ... 340
SALTBURN. —For erecting a house in Diamond-street. Messrs. Lofthouse and Sons, architects, Middlesbrough:—	
Brick, Stone, and Plastering.—M. Gladstone	£645 0
Carpentry and joinery.—W. Heckle	313 0
Plumbing, Glazing, &c.—E. Spence	123 0
Slating.—W. Robinson	39 12
Painting.—Taylor and Sons	19 4
SHIPLEY. —For the construction of the Valley Road outfall sewers, for the Urban District Council. Mr. Malcolm Paterson, M. Inst. C.E., 35, Manor Row, Bradford.	
A. Brathwaite & Co. ...	£5,760 0 Wm. Briggs ... £4,641
F. Eyre ...	5,699 0 Mathew Hall ... 4,418
Rhodes Bros. ...	5,648 0 Wilks & Ross, Shipley* ... 4,345
Wm. Foster ...	5,468 0 *Accepted.
SPALDING. —For erecting a block of three small houses, London Road, for Mr. R. W. Waldren. Mr. R. Holmes Hand, architect, 6, Double Street, Spalding:—	
W. Pick ...	£620 0 S. Alistair ... £510
Fawn and Bone ...	600 0 C. Watson, Spalding* ... 485
J. W. Perkins ...	530 0 E. Tockill ... 480
	*Accepted.
SWANLEY (Kent). —For the erection of a block of six houses. Mr. St. Pierre Harris, architect, 8, Ironmonger Lane, E.C., and Orpington:—	
J. Lonsdale ...	£1,374 0 Stebbings & Pannett* £1,362
	*Accepted.

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COMPETITION.

DORKING UNION. TO ARCHITECTS. AMENDED ADVERTISEMENT.

The Guardians of the Dorking Union invite COMPETITIVE DESIGNS and PLANS, with descriptive report thereon and approximate estimates, for the ERECTION of an INFIRMARY upon the Workhouse Grounds, at Dorking, at an estimated cost of not exceeding £4000.

The Architect whose designs are adjudged of sufficient merit by the Guardians or their assessor (as the case may be), and are placed first, will be employed to act as Architect in the erection of the building, and will be paid for his services according to the usual scale. The Architects submitting plans of sufficient merit and adjudged second and third in order, will be awarded premiums of £15 and £5 respectively. The plans which are placed first shall become the property of the Guardians, and any alteration or modification required by the Local Government Board shall be made by the designer free of charge. Particulars of the accommodation, &c., required will be forwarded on receipt of stamp directed foolscap envelope.

The plans, drawings, &c., are to be delivered at my Office, 35, High-street, Dorking, on or before WEDNESDAY, DECEMBER 15th, 1897.

GEORGE SCALES.

Dorking,
 October 13th, 1897.

APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

NORTH RIDING of YORKSHIRE COUNTY COUNCIL.

TO CIVIL ENGINEERS, SURVEYORS, &c.
 The County Council of the North Riding of Yorkshire are prepared to receive APPLICATIONS for the OFFICE of ASSISTANT SURVEYOR.

The applicants must be capable of preparing contract drawings and specifications, surveying and levelling, and setting-out and superintending of structural works, and the inspection and control of main roads.

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The appointment will be held during the pleasure of the County Council, subject to three months' notice on either side, and the salary will be £200 per annum, with office accommodation, stationery, &c., and approved travelling expenses.

Applications, stating name, age, present employment, and previous experience, accompanied with copies of three recent testimonials, addressed to the Chairman of the Work, Highways and Bridges Committee, Court House, Northallerton, and marked "Application for the Office of Assistant Surveyor," may be sent on or before DECEMBER 11th next.

WILLIAM C. TREVOR,
 Deputy Clerk of the County Council.
 Clerk of the Peace's Office,
 Northallerton, October 27th, 1897.

JUNIOR ASSISTANT or IMPROVER REQUIRED in Dublin Architect's office.—Address, stating age, experience, and salary expected, and enclosing copies of testimonials, to W. KAYE PARRY, M.A., 35, Dame-street, Dublin.

(Continued on page x.)

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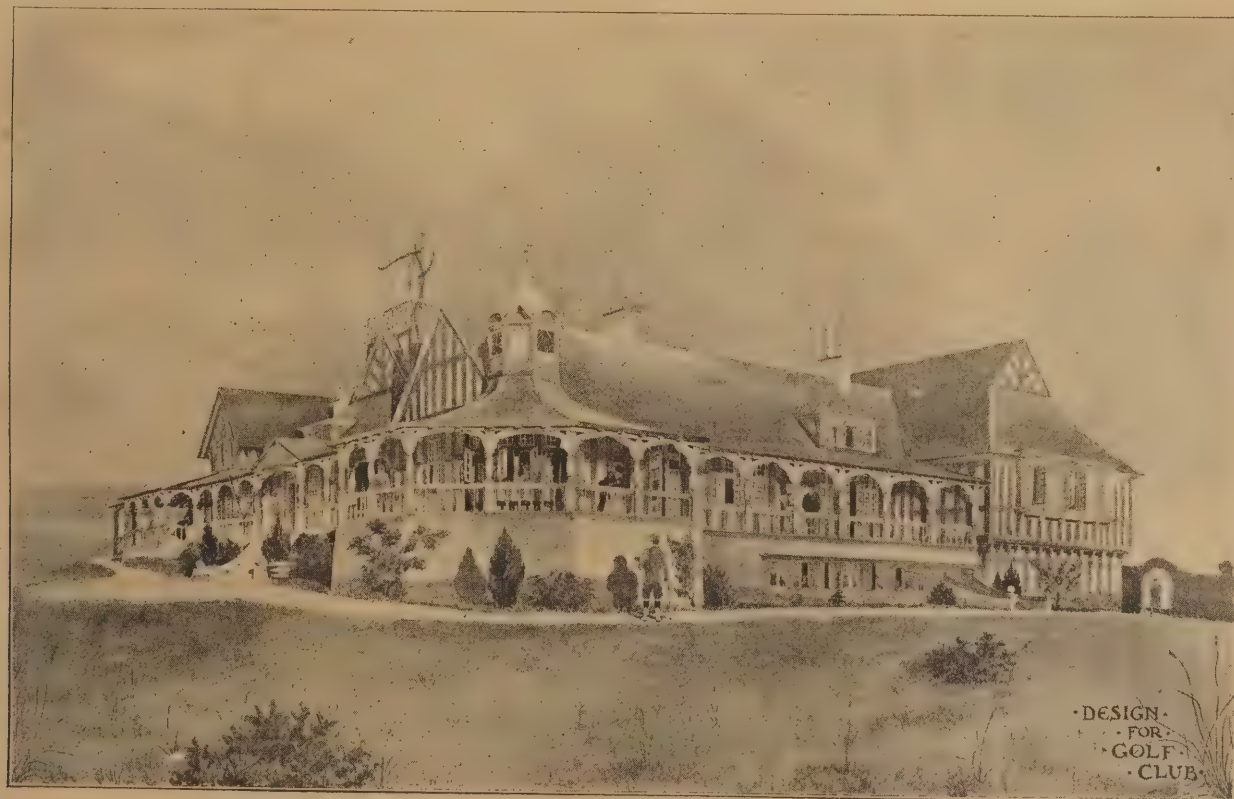
An Architectural Causerie.

Long-Suffering Architects.

YET another to swell the long list of bogus competitions. Verily, architects are possessed of Job's patience to stand so many fleecings. And one begins to wonder what exactly the Institute Competitions Committee is for and does. The Tottenham School Board has remarkable ideas of the value of the Profession's time. If we are not mistaken it lately advertised at least one

or Committees; and for an extra set of plans, tracings, and specifications; also for making any alterations to the competitive plans, &c., required by the Board. (b.) The contract plans and specification to become the absolute property of the Board. III. The rough sketch enclosed is what the Board thinks necessary. *No curtailment of this can be accepted.* The clerk left out one item, viz., a ladies' lavatory. Inasmuch as women are eligible for seats on a School Board, it is desirable that there should be a separate lavatory for ladies. It is hoped that architects will only take the clerk's rough sketch for general guidance. Improvements upon this will naturally be expected, as the clerk is not an architect. IV. With the designs should be sent a concise statement (either in print or type-writing) showing what materials are proposed to be used and the probable cost of the undertaking including architect's commission. If, when the tenders are opened, the lowest tender from a responsible builder is palpably higher than the estimate of the selected plans, then the Board reserve to themselves the right to abandon the preferred

walls drawn to a scale of 20ft. to an inch. (b) Plans of ground and other floors drawn to $\frac{1}{2}$ in. scale. (c) Front, side and back elevations drawn to $\frac{1}{2}$ in. scale. (d) Two sections at least drawn to $\frac{1}{2}$ in. scale. No perspective drawings will be allowed. The whole of the drawings to be finished in Indian ink without shading or colour, except the sectional parts of walls. All printing to be plain block. The drawings to be mounted on plain strainers. XI. The sanitary arrangements must receive the closest attention, and must comprise the latest improvements. XII. The buildings to be of brick, with such stone, brick, or terra-cotta dressings as the design may require. XIII. Joiner's work to be stained and varnished inside the buildings. Roofs to be covered with felt, boarding and plain tiles. XIV. No design, report, or specification shall bear any motto, device, or distinguishing mark, but shall be accompanied by a sealed envelope fastened to the plans containing the full name and address of the competitor. Each of the accompanying documents will be numbered in order of receipt by the Clerk of the Board. XV. The Board will not



A.A. GOLF CLUB HOUSES COMPETITION. DESIGN BY L. G. BIRD.

school competition at $3\frac{1}{2}$ per cent. By the way, the Institute will probably see to it if any member entered at that percentage. We have now a still worse example from the same Board. In July, 1897, an advertisement was issued for School Board Offices. To obviate further preamble, here are the "Conditions."—I. The Board will decide upon this competition, and they may, if they think fit, ask the assistance of a professional assessor to guide them in their choice. *The Board do not bind themselves to accept the lowest or cheapest design.* II. The Board propose to employ the architect whose plans are preferred to carry out the works at a commission of 5 per cent. on the total cost of the works, subject to the following modifications and conditions. (a.) The 5 per cent. Commission on the total cost of the works to include all necessary plans, specifications, all travelling expenses, and visits to and inspecting the works; attending all meetings of the Board

designs without any liability of any kind to the architect. V. The elevation and general arrangement of the buildings must be in nice harmony with the Downhills schools. VI. The Board themselves will arrange for the fittings of the offices, and will not require the assistance of the architect for this purpose, except for the gas-fittings and lavatories. VII. Nine-inch work in any of the external walls will not be considered adequate. VIII. The heating should be by open fireplaces, but it would be advantageous if the heating of the building could be aided by pipes fed on the low-pressure steam system. IX. It is essential that there be no question about the adequate amount of light either by day or night. X. The designs to be in accordance with the building rules of the Tottenham Urban District Council. The drawings to consist of:—(a) A block plan showing position of buildings, system of drainage, and positions of fence and boundary

discuss the decision they ultimately arrive at with any architect. They decide now, however, that any design not in accordance with all or any of these conditions will be at once set aside and rejected. XVI. With regard to the cost, the Board leaves this question open to the architect in his description, &c., under Clause IV. *The cost will not necessarily by any means be the leading factor in the selection of the plans.* In other words, the Board are not looking out for "the lowest bidder." XVII. Any attempt to influence the decision of the Board or the assessor will disqualify a competitor. XVIII. No competitor is to submit more than one design. XIX. The drawings to be forwarded by rail or parcel delivery to the undersigned by September 6th, 1897, endorsed "Design for New Offices." The italics are ours. Twenty-two architects, we think, competed. The next thing we hear is through the Tottenham

Weekly Herald, reporting the decision of the Board. It appears from this that although it had inserted Clauses II. and XVI. in the conditions, it had privately resolved to limit the expenditure to £3500, and this sort of private resolution has a way of getting known locally! At any rate, dissatisfaction was expressed at the meeting, and some one proposed that *they wash their hands of the whole competition and have another!* This was unanimously adopted! Next appeared an advertisement for the new competition. This appeared before the competing architects even heard the Board's decision through the papers in which it originally advertised. We give also the Board's letter to the competitors herewith:—"Dear Sir,—I am directed by this Board to thank you for sending in a competitive design for these Offices. The Board, however, arrived at an ultimate decision not to accept any one of the plans sent in, and to return those received to the various competitors, and to have a fresh competition. On hearing from you I shall be happy to send you a fresh set of conditions.—I am, dear sir, truly yours, J. F. ADAMS, Clerk to the Board." That the Board was prepared for something of this kind is clear by the insertion of condition XV., and, although it will discuss nothing with the architects relating to its decision, the only course open is for the competitors to instruct their legal advisor to do so. We sadly fear that if the twenty-two competing architects sent in their accounts for a hundred guineas each this particular Board would not see office again at the forthcoming election. In fairness to those whose brains have been more or less sucked through these deceptive conditions, the best the Board can do is to offer them some remuneration for its breaking faith with the competitors. If it will not, in the interest of the Profession, the competitors should club together and fight the case. Again, what guarantee has the second lot of competitors that the same sort of game will not be tried again? Absolutely none; for the second conditions are almost identical with the first, except that the definite limit of £3500 is imposed. It is clear that the Board has shown itself incompetent to judge the competition, hence we trust that the members of the Profession will honour this second invitation in the only way it deserves. The Board has one way out of its difficulty—to place someone first and pay him 2½ per cent. for his trouble, or employ him at 5 per cent. and make him alter his design. There seems to be some local influence about the whole affair which obscures the motives of the Board.

CONTRIBUTED.

Of Agnosticism in Art.

ELDERLY essayists, from Cicero downwards, have laboured to present a favourable case for the advantage of growing old. Age, they say, is tranquil, serene, and free from illusion. It sees life sanely, and sees it whole, and is not misled by the mirage which deludes the young. That is to say, age is cynical—amiably so or bitterly, as the successes or disappointments of life may predominate. Age, therefore, is, without enthusiasm, the great dynamic force which moves the world. This mental attitude is natural in those who have passed the hey-day of life, and exceptions to the rule are regarded with wonder and surprise. There are instances which all can note of the survival of youthful ardour—an ardour which has defied the march of time; and we know, as Thackeray says, that the giant in the fair is 8ft. high. But these are phenomena, and out of the common course, and we recognise them as strange and exceptional. The agnostic spirit befits age—age, which has outlived the convictions which are the prerogative of youth. One who can look back upon the

activities of half a century, beholds his former self as in a dream, and is amazed at the hold which faiths, artistic and otherwise, once had over him. In the fifties, there was no Architecture but Gothic, and Pugin was its prophet. With what unquestioning faith we all marched under his victorious banners; and how earnestly and sincerely we echoed the fine scorn which that great genius showered upon all who were not of the chosen people. "True principles" were then true indeed, and the dicta of the leader were accepted with the conviction which nothing could shake. Then arose a new teacher, and many of the faithful were drawn away by the impassioned pleading and the resistless rhetoric of an Oxford undergraduate. The new enthusiasm was equal in force to the old, but, like the old, it yielded to the effects of time. And now one looks abroad, and looks in vain, for the equivalent of the discredited faiths of his prime. What teacher do the young men of to-day follow, and what code of artistic law is operative for them. Classic and Gothic schools have had their day, and even the mixed or "go-as-you-please" manner is becoming obsolete. There never was a time when Art was so much written and talked about; but what do we now understand by Art? Once it had a meaning. What does it mean now? Let those amongst the young men of the day who have any definite views on the subject reply. It may be that they are guided by principles, real though unexpressed. It may be that they are merely looking forward with hope to some new developments in Art, now that the old trammels are removed. The young architects are more numerous, better educated, and have more facilities of every sort than fell to the lot of the generation they are succeeding. It is fair to suppose that they will achieve great things. But it is difficult to see upon what line of thought or action they are to proceed, and until some definite artistic creed is formulated, one can but conclude that they are embarked without compass or chart, and that their destination will be more or less the result of happy chance. Time, youth, energy, enthusiasm, may in the end evolve some definite artistic method stronger and more enduring than those which are gone. Meanwhile, one can but regard them all as occupying in the Art world a position which is only expressed by the "ill-sorted" word Agnostic. E. I. B.

First Principles in Modern Architecture.

WHEN in doubt the scientist invariably goes back to first principles, and it is a healthy sign of the times that architects are now intent upon doing the same. For a long, dismal period they were content with proportion and style, and although proportion is a principle of the first importance, an evanescent, subtle essence, it was scarcely considered so much as style, and style is no more to the architect than language is to the literary man. No one can doubt but that Shakespeare, Goethe, and Voltaire would have produced equally good and characteristic work had each written in some other language than that which circumstances led him to use; and in reading the works of these great masters one does not think so much of their being English, German, or French, as that they express great thoughts and emotions. Thus, while an architect must of necessity master one style, as the literary man masters his native language, and must make himself conversant with others in order to understand the works already composed in them, it by no means follows that this style should dominate the thoughts which he wishes to express. First principles are of a much more delicate character than

this, not to be learnt as a style or language is learnt, but of the nature of emotions which can be expressed in any style. The power of doing this takes long to acquire, and it has to be sought diligently, the first necessity being that he who seeks shall have some idea of what he is looking for. It accordingly becomes of importance to know what it is that a building is capable of expressing, and to find this out one naturally turns to works of past ages, to discover that the Egyptian buildings were expressive of grandeur, mystery, and overbearing pomp; that the Grecian work was the very concrete expression of high intellectuality; that the Roman was masterful and rugged beneath, but with a veneer of superficial polish upon the surface; while the Gothic showed high aspiration and seeking after truth and holiness. These are all high ideals, and these are the real first principles of Architecture. Each building should express something in its general mass, its proportion, and its details; and the architect succeeds as perfectly when he builds a cottage which symbolises rural peace, or a little country church which is suggestive of worship, as when he erects a palace of great size and magnificence of display. G. A. T. M.

A QUESTION OF VIEW.

TRANSLATED FROM THE PARIS FIGARO.

THE ENGINEER.—This would be the best site for our station.

THE DEPUTY.—Quite so.

ENGINEER.—You see, we shall be in the very centre of Paris, and right in the heart of the business quarter.

DEPUTY.—And it would be a convenience for everybody. . . .

ENGINEER.—Then I may count on your support in the House?

DEPUTY.—Oh, certainly . . . yet, before promising definitely, I should just like to make sure of one detail.

ENGINEER.—With pleasure. What may that be?

DEPUTY.—Let us just see if the new station will interfere with the view. (*Makes a few steps, and looks around him.*) Hum! . . . the buildings will be here, won't they?

ENGINEER.—Well, yes, just where we are standing.

DEPUTY.—Do you mean to tell me, then, that we shall no longer see the bend of the Seine from here?

ENGINEER.—I'm afraid you will scarcely be able to see. . . . The view will naturally be quite shut out from this side.

DEPUTY (*stepping back horrified*).—This view will be hidden!!

ENGINEER.—It is impossible to avoid it. Think of the size of the station.

DEPUTY.—What has that got to do with the view? I'm tired of your station.

ENGINEER.—But think of the passengers. . . .

DEPUTY.—Well, what about the passengers?

ENGINEER.—Then the question of transport?

DEPUTY.—Well, what about that? You engineers are simply amazing with your stations and your transport. The essential is, not the transport of passengers, nor yet of goods, understand, but the obstruction of the view; passengers we have always, but beautiful views are rare. Hang it all! if everybody listened to you there would soon be not a single view left in France, we should have nothing but stations, girders, and bridges, and other structures more or less ridiculous; a lot you care for views! . . . Fortunately, however, we have still a say in the matter there. I shall certainly not vote for your scheme.

THE plans of Mr. Wyndham's new theatre have been finally approved, and it is probable that the next few weeks will see a commencement made of the building, which, when completed, will be one of the most commodious of the West End playhouses.

A.A. COMPETITION FOR GOLF CLUB HOUSES.

THE number of competitors which the Architectural Association silver medal and prize of ten guineas has attracted this year is certainly above the average, and the same remark applies to the quality of the work. The subject chosen, a golf club house, was attractive in itself, and an excellent opportunity for the exercise of the picturesque and economic faculties of the student. The particulars were for an imaginary club containing 250 gentlemen and fifty ladies, with links near the sea coast. The result was to attract eight designs, all of which showed that their authors had expended careful study and thought upon their respective productions.

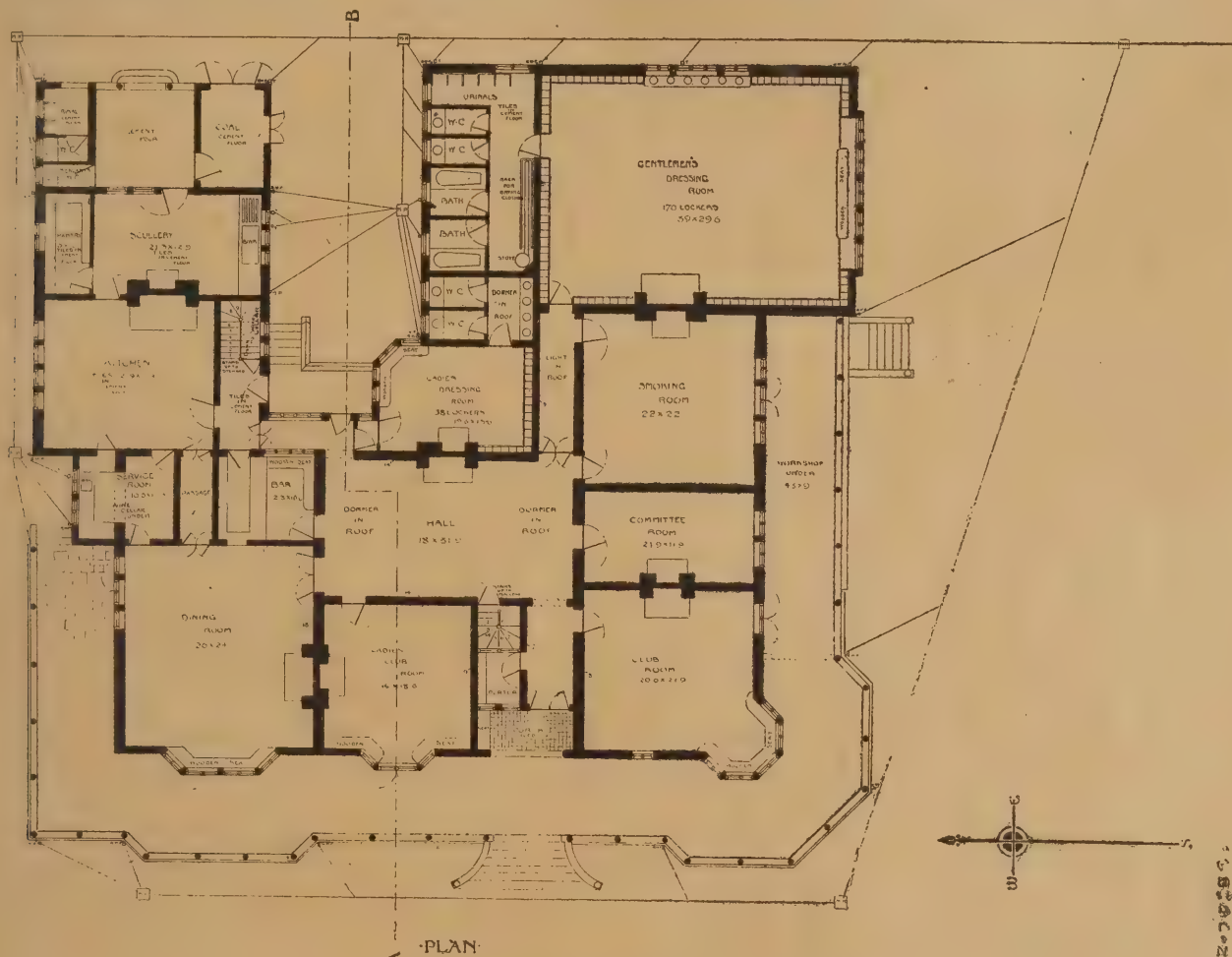
of architectural work, while the value of such efforts in stimulating self-reliance and invention can scarcely be over-rated.

The drawings on view at the rooms of the Association in Conduit Street were, as we have said, eight in number. At their head, as winner of the silver medal and prize, is Mr. H. I. Triggs, whose name, we believe, is becoming well known in connection with competitions of this and even of a more serious kind. He is closely followed by Mr. W. D. Clapham, and we propose to notice separately the drawings of these two gentlemen and their fellow competitors. Mr. H. Inigo Triggs shows a design remarkable for its care and forethought. He exhibits his gallantry no less than his professional skill in the manner in which he provides for the accommodation of the lady members, who have an entrance from a verandah and terrace, separated from their

been supplied with some degree of haste, are characteristically executed. We would especially select his water-colour drawing of the perspective, as showing the best points of the designer himself, as well as the advantages of the particular building.

The sub-committee to whom the award is entrusted can have had no easy task to decide between the first two competitors, but a closer examination of both designs removes any lingering doubt that its ultimate decision was correct.

Mr. W. D. Clapham, who proved such a closely-matched opponent, has been awarded honourable mention for his admirable design. Perhaps the point which told with the judges most in their decision was the fact that while Mr. Triggs has confined most of his important rooms to the ground floor, Mr. Clapham has occupied no less than three floors. His en-



A.A. GOLF CLUB HOUSES COMPETITION. BY L. G. BIRD.

The Association may congratulate itself on the establishment, on a sound basis, of a successful series of competitions which promises to attract an increased number of students, and shows a steady improvement in the standard which the young architect sets before him.

Before we pass to our pleasant task of describing and criticising the drawings, a word may be said as to the great value which attaches to competitions for students like the present. Whether the competition system be good or bad, it is a fact that an immense amount of professional work is thrown open to the body of architects by means of public competitions, and it can scarcely be amiss for the recruit just about to enter the battle to have borne his share in a mimic fight where the conditions of the contest are so nearly analogous to the more serious warfare. It cannot be doubted that any device which encourages the student to reproduce his own ideas rather than, as is too often the case, to copy the designs of his fellow men, will, if properly and wisely directed, raise the standard

clubroom. The chief entrance and hall are skilfully planned, the latter adjoining the dining-room, which can be reached from the ladies' quarters by another door. The dining-room would appear to be most effective, lighted partially by dormer windows. The kitchen and housekeeper's rooms are placed on the first floor, so that any smell or noise arising from cooking are prevented from reaching the dining-room. In the dressing-rooms, Mr. Triggs has, in the provisions as to seating accommodation, shown that the details as well as the general effect have received a due amount of care at his hands.

In his elevations, the prize-winner shows considerable breadth and boldness of treatment, and the whole is dignified and restful. He has carefully considered his skyline—an important factor which is too often neglected—and he has throughout avoided that unnecessary elaboration of detail which forms a formidable pitfall to the younger section of students.

Mr. Triggs' drawings, as a whole, though the finishing touches would appear to have

trance to the hall and staircase are capital, while a great advantage in his design is the separation of the household offices from the main building. It is noticeable, however, that he is prodigal of space in his provisions for passages and lobbies, while the accommodation for the professionals is relegated to the basement.

It is in his elevation that the author shows more particularly a distinct taste for the picturesque and unconventional, but dignity and harmony have been in no way sacrificed. The materials selected are, for the lower portion of the building, stone with rough-cast above, and for the roof, green Westmoreland slates. These form a combination remarkable for quiet colour, and the general result is original and distinctly effective.

A verandah runs round two sides of the house, simply treated, and is a valuable addition to the dignity of the design. We would finally commend the careful proportions of his windows, and indeed of all his design.

Mr. L. G. Bird is probably himself a golfer, for the practical details are worked out



A.A. COMPETITION. DESIGN FOR GOLF HOUSE. BY H. TANNER, JUN.

with an experienced hand. The dressing-room which he has provided for the gentlemen is nearly three times the size of their club-room, which would appear to us an immoderate allowance. The entrance seems wanting in illumination, but this could probably be remedied by top-lighting.

His elevations, if they fall short of the two designs which we have already considered, are not wanting in originality, but this has been acquired at a sacrifice of dignity and quietness of treatment. In a word, he has allowed his fancy to revel unrestrained, to the neglect of more important architectural considerations.

In the perspective his technical skill as a draughtsman is admirably exhibited, and proves to be of unusual merit; indeed, if mere drawing were in question, there is little doubt that he would be in a high position.

With the exception of the perspective, his drawings have a somewhat laboured effect, and are spotty in execution. He will probably discover that a really striking drawing can be obtained without the inclusion of anything unnecessary or superfluous.

Mr. C. A. Battie has formed his plan in one solid block, which has naturally led him into difficulties with his lighting and ventilating arrangements. These he has attempted to overcome by the use of skylights. Most of the requisite rooms are placed on the ground floor, but it seems to us an error of judgment to put the ladies' dressing-rooms and lavatories in the front of the building, while the gentlemen's club room, though well arranged, hardly gives sufficient space for such an important apartment. There is a restfulness in his elevation which is distinctly pleasing, while he has bestowed admirable care and skill in the well-finished scale drawings. In his perspective he has perhaps neglected the architectural features of his building in order to make an attractive picture—a fault, we may add, which he shares in common with many young architects.

Mr. H. Tanner, junr., has a somewhat extraordinary plan, based on the abuse of what is a sound idea. In dispensing with passages to the extent which he has, he appears to have overlooked the requirements of a club which is to include both ladies and gentlemen, and in practice his scheme would probably be seen to work awkwardly.

His elevations are very fair, showing slate roofs with large, projecting eaves, while his perspective drawing in ink is well above the average.

The fact that we regard this form of competition as so important and beneficial to students in general must be our excuse for omitting to do more than mention the other competitions which were simultaneously ex-

hibited; most noticeable those sent in for the measured drawings prize. The popular subject in this section seems to have been the pulpit of St. Nicholas Church, Deptford. Nor can we do more than mention the designs of gentlemen who adopted the pseudonyms of "Gradatim," "Eothen," and "I Strive," all of which show points of merit which, if wisely developed, should earn for their authors success in a later competition. The subject set for the next competition is, we understand, a convalescent home, which we sincerely hope will attract an even larger number of students. Upon intending competitors we cannot too strongly impress the fact that it is these competitions alone which give them the independence of invention and execution which cannot fail to prove of immense benefit in all the work which they are called upon to do. Of one thing they can be sure, that their drawings will receive most thorough examination at the hands of the judges, and we trust that the friendly criticisms which we offer may prove to be of some slight service to both the competitors and their fellow students.

CLAIM FOR TENANT RIGHT.

IT seems strange to hear of a claim for tenant right in the City of London, but such a claim has been made to the Court of Common Council on behalf of the tenants of premises belonging to the Corporation, and managed by the Bridge House Estates Committee, in Finsbury Circus and London Wall. With a view to increase its revenue, which has been considerably depleted by the expenditure on the Tower Bridge, it has decided to pull down the whole of the houses on the south side of Finsbury with the exception of three, together with the houses on the north side of London Wall, between Finsbury Pavement and Blomfield Street, and a number of houses in Finsbury Pavement and Blomfield Street, the leases of which will expire at Midsummer, 1899; the land is to be put up to auction and let on a building lease for eighty years, in five large blocks. The present tenants have presented a memorial to the Court of Common Council, stating that they have laid out large sums on these premises under the impression that the leases of the premises would be renewed, and that if the proposed scheme is carried out they will be driven from the locality and their business ruined. They therefore pray that the Council will not approve the scheme, but will re-let the premises at a rack rental and give the present tenants the preference on re-letting.

A PROPOSAL FOR CLASSIFYING BUILDERS' WORK.*

BY S. FLINT CLARKSON, F.R.I.B.A.

THE proposal is that classes, such as fair (A), good (B), best (C), shall be agreed upon. The proposal is made in the interests of employers, architects, and contractors. It will probably be about equally serviceable to all, as long as contract amounts are settled by competition tendering. Other systems besides competition may be tried with advantage; but, at present, the greater part of the work is allotted in that method, which seems likely to be kept to also in the immediate future. Drawings, specifications, quantities, competitive estimates, clerks of works, and other superintendence, and 5 per cent. are the recognised machinery—by which an employer gets exactly what he ought to wish for, and is assured that he is to pay no more than the market price for it. We propose only a minor improvement in the regular machinery. Let us see why it seems desirable. Gradation in quality is as legitimate in builders' work as it is in anything. People know this very well, though they may grumble when gradation takes too wide a range. Proportion is not simply securing the right relation of function and apparent importance. Thorough proportion requires that materials and workmanship shall be varied judiciously by the architect in different buildings, and in different parts of the same building.

BLUNDERS AND WILD TENDERING

will account for anything, but there will be smiles, and notes of admiration also, for less outrageous disparities—which might often be traced to misapprehension as to the class of work required. Between work of the highest class and fair work without pretension to excellence there is a wide distance. From work ranking with the best of all time we reach by proper stages the most ordinary work—sound and serviceable, though wanting in fineness of quality and finish; and thence the déclassés may be reached—found in building as in life. Certain contractors lay themselves out for work of a certain kind, selecting workpeople and materials accordingly—and anything out of the usual course meets with less cordial welcome, and is sometimes not competed for with eagerness. The selection of such imperfectly sympathetic contractors accounts for other bad tenders, as also the selection of people who differ a good deal in the class of their business. Classification

* A paper read before the Architectural Association on Friday night. Mr. H. D. Searles-Wood's paper on "Some New Materials for Use in Building," read at the same meeting, will appear in our next issue.

of work will not help us over all difficulties, but it may be of service in many. Any decent names of classes will prove better than any others as soon as they are generally accepted. Naming of sub-classes would cause little trouble; everyone could do it for himself, or

DEFINITIONS MIGHT BE AGREED UPON

from time to time, and then used in general practice. There are good precedents. Ships sort themselves into classes. "Best best" is in general use. There are degrees of merit in timber and other trades; it is, in fact, difficult to find a trade which does not supply precedents. "The Act to facilitate the granting of certain leases" (8 and 9 Vic., c. 124) has supplied for over fifty years specimens of concise forms having much meaning. Fair, good, best; Classes 1, 2, 3; ordinary, average, superior; and many other words or forms may suggest themselves, doubtless all with show of reason. There must naturally be two extremes and a mean. The worst work with which an architect could be connected would be at one end, first-rate monumental work at the other, and something better than the one and less excellent than the other between. Let us try:—CLASS A.—Nothing special anywhere; the most current things in all trades. CLASS B.—Something below the best; special design, adaptation, &c., in the more important parts of the building; good execution, but a keen regard for cost. CLASS C.—Excellence in materials and execution; the most finished work of the time; for the best public and private buildings. Objectors will hint that some contractors might try to supply the least costly work of its Class—in fact, the worst work which the architect would pass—instead of what was intended; but the same sort of contractors do that sort of thing

now. It will also be suggested that general specifications are not effective, and that classification might be interpreted by some architects as an encouragement to undue brevity. "The building is to belong to Class B, and is to be completed in all respects accordingly," is the pithiness which is feared; but the passion for detail will keep most architects on the old lines. Old friends, in new clothing, always come to the front to hinder changes; but this brave self-devotion does not entitle them to special mention.

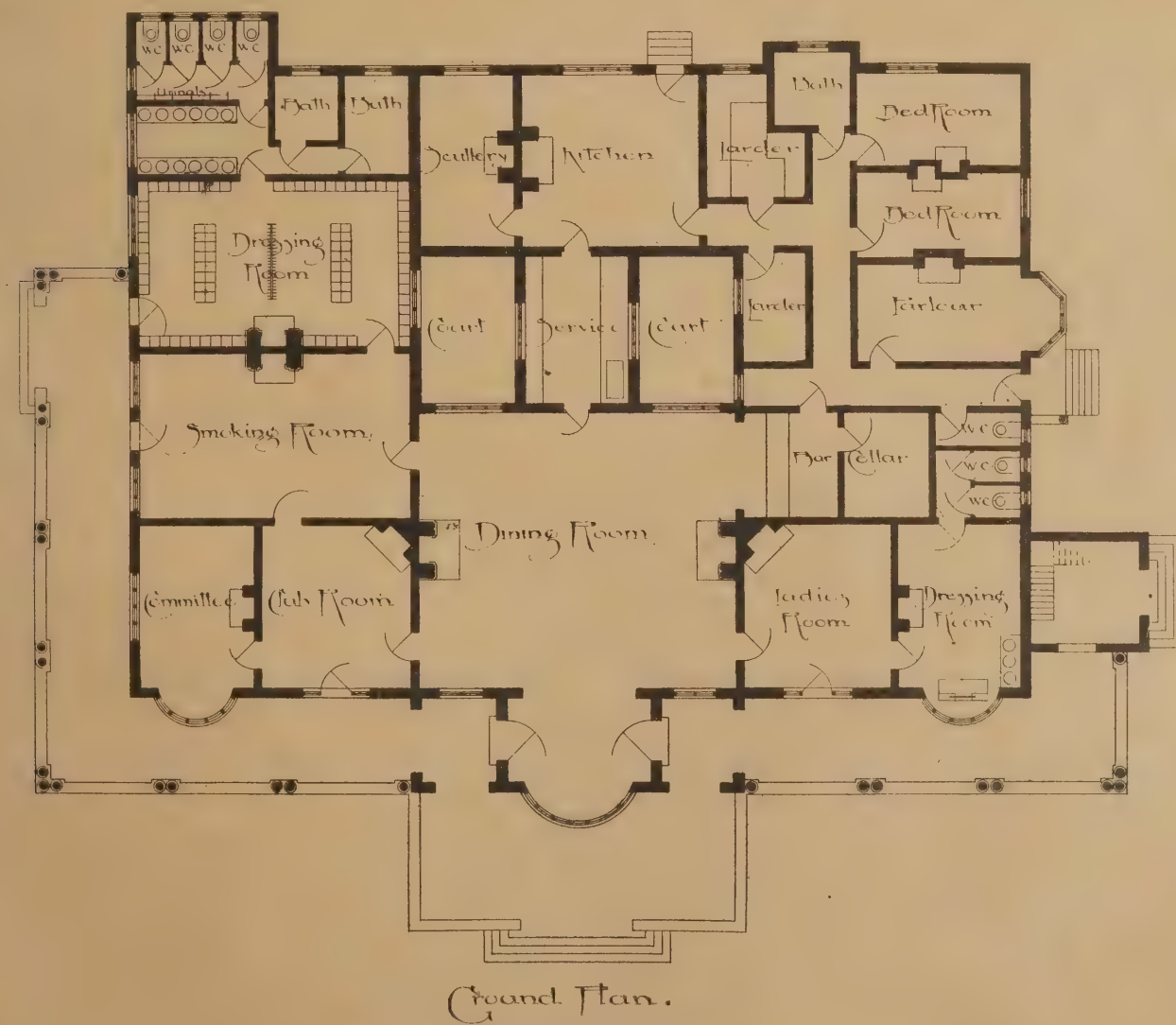
HURRIED, SLOVENLY, AND GENERALLY INFERIOR SPECIFICATIONS

(and drawings) should not increase in number, as they are serious evils; but it does not follow that anything which might prevent an inferior specification from failing hopelessly would necessarily be an evil. Hopeless failure results when everything proves adverse; but purses pleasantly full, well-occupied lives, and a healthy appetite for compromise enable many meagre specifications to keep their virtue. Sometimes they are even (in retrospect) looked upon as blessings in disguise. Some employers appreciate low tenders; the architect who has obtained so much for so little is spoken of as skilful and economical; and the contractor, if treated with judicious liberality, does not object to posing as a benefactor who works more cheaply than other people. Contractors are sometimes informed, in suitable language, that they are not to add a large sum per page of specification to their tenders, because the specification seems unusually big, and so much per drawing also, because some of the detail drawings, which will form part of the contract, have been prepared in good time instead of later on. Shrewd employers have the same thing in view when they ask whether a specification of

150 pages is really necessary, and hint that explanations about moderation in quality to the builders submitting tenders should be very precise. The mention of a recognised class of work at the beginning of a specification need not lead to the omission of a word from the most thorough specification. The proposed prefatory words would, however, throw a strong light upon every detail. There are pieces of work which fall to every one of us, where time is so all important that delay of a few days in starting the work may lead to serious reflections on the

ENERGY AND RESOURCE OF THE ARCHITECT.

These are, happily, exceptional cases, though apparently on the increase, and should not influence ordinary practice conducted under better conditions. But an architect thus pressed for time, after describing all special items and throwing the rest of the work into one of the proposed classes, might feel solid ground under his feet in carrying through a contract. The classification would frequently be, in effect, a record of the result of negotiations; such a record as ought to be in writing, in view of the uncertain future—for general understandings are frequently misunderstood, memory fails, or ill-will and bad blood distort it, and much else; or parties die and give no sign. A specification may call, in conventional terms, for the best materials and labour of their respective kinds, and describe the respective kinds, and still leave a good deal to the discretion of the architect. People who can get on with very imperfect specifications manage to struggle through with more perfect ones. Difficulties arise when a contractor tries to supply a good deal less, and an employer, at the same time, asks for a good deal more than the discreet architect considers that the con-





A.A. COMPETITION. DESIGN FOR GOLF CLUB HOUSE. BY C. A. BATTIE.

tract provides. The employer, who anxiously suggested explanations to the contractors as to a moderate sum and a good deal of work for it, may find that events before the contract was signed, after a busy interval, become more and more shadowy. He then prayed, as a favour, for

MEDIOCRE WORK;

now he and his friends read the specification with much care, and interpret conventional phrases literally and liberally—and there is perhaps assistance for them from legal minds. If the contract made it quite clear that work of Class A was intended, such an employer might be disposed to leave things alone. An architect selected because he has a reputation for thoroughness and work of high quality; an appeal by the employer for the mildest treatment such a reputation will permit; resolute bargaining and a low contract sum; and in the sequel a tender solicitude for the keeping up of the architect's reputation—might thus, in the future, be treated by a playwright as one of the dramatic situations possible only in the elder days. It happens too frequently that Fate rewards a fair-minded architect with more than adequate retribution for other people's faults. The same post may bring him remonstrances both from contractors and employers. One contractor cannot find in the one-eighth scale drawings several mouldings for which he has received full sizes; another finds too many check grooves and tongues in the joinery, and unlooked-for stoolings in stonework; another suggests vigorous reductions (or extras), and something nearer a freeman's liberty as to materials. Employers, on the other hand, say their say. Pleasant-minded architects have remarked that, if there is an ambient atmosphere of imperfect satisfaction while the works are in progress, there will not be very much cause for grumbling at the end. But would not things go more smoothly in many cases if everybody had the help of the proposed classification? It should be added that no minor change will prove a panacea for all building ills. A trial of classification is only a modest little practical proposal. It could be easily introduced, and should be generally accepted in a short time.—The President, in opening the discussion, said at first sight Mr. Clarkson's proposal might seem a simple one, but the more they looked

into it the more difficult it became to realise it in a practicable way. It was easy, in looking at a finished building, to classify it in accordance with Mr. Clarkson's proposals, but when they were starting to build they could not put one of the classified models before them and say that was the class of building to be erected. It seemed to him that there would be great difficulty in definition. After all, a building was made up of parts and details, and the different degrees of quality were matters of specification. He took it that it was more a question of difference in the quality of materials than difference in workmanship that went to make up the classification, and it seemed to him that they might have a difficulty with builders who, for their reputation's sake, would say: "I only build in one class; my work is only one class of work." Builders did say that, and it seemed reasonable that they should. If it were represented to him that the client did not want to spend much money, the builder would think perhaps that it was

BENEATH HIS REPUTATION

to build anything but the best. The speaker could imagine that the best class of builders would have no share in the proposed system. But supposing they were anxious to adopt some system of classification, would not the actual work of classifying be very difficult? He did not see why a building should not come within two or three classes instead of only one; seeing it was principally a question of material, they might use inferior goods only in parts, and that, of course, would interfere with the classes. It was more a question for builders to discuss and determine than for architects. They, as architects, had generally been accustomed to specify that all the work and materials should be of the best kind, but they knew perfectly well that that meant nothing unless they entered more definite descriptions and saw that the work was carried out accordingly. It seemed to him that with a good and clear specification and some control over the materials they had everything required in securing the proper execution of the work in hand.—Mr. W. H. Seth-Smith said there was something very fresh in Mr. Clarkson's proposal, which warranted them in asking time to consider his suggestions. He (the speaker) was, however, rather inclined to agree with the President that the thing would

be very difficult to work, though he differed with him when he said that the matter was more one of materials than workmanship. With the present trades' union regulations a good workman received just the same wages as an indifferent one, and they would have to pay the same uniform rate of wages in each class. After all,

TWO-THIRDS OF THE COST OF A BUILDING

went in workmanship and not in materials, and that was where one difficulty would arise. He thought the proposal would be especially valuable as applied to architects and clients, for the latter might then be made to understand that in cases where a lot of work was required for a small price, the work would not be in Class C. The mistake often made in carrying out this class of work was in endeavouring to introduce too much detail; it was more satisfactory and not less so when omitted.—Mr. Leaning said the question was one which had been an under-current in the minds of architects for many years. It was suggested that the establishment of a series of classes would dispel the hitherto unspoken element in buildings, and by so doing eliminate the margin now allowed. He thought it would be worth a few moments to examine what it was which constituted the quality of a building. The first essential point was the efficiency of the several parts of the building, such as the thickness of the walls, the scantling of the timber, &c. The second factor was the style and finish of the workmanship. The classification could only be made to apply to the quality of the materials and workmanship, and not to drawing of details. How was it that the speculating builder could produce a house at so much less cost than an architect? Largely, he maintained, by economies effected in such matters as the thickness of walls, scantling of timbers, proportion of concrete,

THE USE OF STOCK MOULDINGS

instead of detail mouldings, the use of zinc instead of lead, and so on. But as regards the materials, the architect was able, without much trouble, to bind the builder hand and foot by specifying the maker of his facing bricks, lime, and cement, the maker of his glazed bricks and rubbers; what pit his sand shall come from, the maker of his iron and steel, the quarry of his slates, and the weight of his lead and zinc. The chief difficulty was as to

timber, and insistence on well-known brands seemed the only safe guide. The relative value between the best timber on the market and fourths or fifths, which was what a speculating builder would probably use, represented in the construction of a £2,000 house something like £50. It was clear, he maintained, that the proportion of work in building which could not be specified was very small. He thought it would have been better had the proposal taken the form of three or four model specifications which might be circulated among architects purely for themselves, defining what were the things to use for certain qualities of work, and how far down they might go in the scale without sacrificing good taste. He maintained, however, that by the present system it was quite possible, and, indeed, many architects succeeded in producing work of the best description, and, when necessary, in economising without sacrificing good construction and good taste.—Mr. G. Douglas Mathews thought Mr. Clarkson's suggestion was a valuable one, but not of such simple practicability as he made out. His proposal would, no doubt, if carried out,

CREATE A REVOLUTION.

There was no doubt that at the present time builders quite understood the different classes of work themselves, and it was necessary that the proposed classification should be put so clearly that there could be no doubt whatever in the minds of any party concerned to what Class the building belonged. Under the present system all doubt as to the class of building to be erected would be dispelled by a note at the top of the specification that the materials must all be of the best quality, and that nothing else would pass muster. He was afraid the classification as proposed by Mr. Clarkson would not tend to clear the air, but on the contrary, would give rise to considerable difficulty. He confessed that the paper was not so clear as he could have hoped, but yet he had not the least doubt that if Mr. Clarkson put his suggestions in more definite form the Practice Committee of the Institute would be pleased to hear it, and see if the matter was capable

of being carried out.—Mr. H. Lovegrove asked if it was not a fact that the builders were very much classified at present. If they were going to build a large common building in the suburbs they would not ask the best firms to tender, or on the other hand, if they were erecting a first-class building in the City, they would scarcely go to the suburbs in search of tenders, so that it seemed to him that the builders themselves were at present classified. Supposing that when a building in Class A had been finished, the architect discovered a glaring opening in the mouldings and sent for the builder, could not the latter reasonably produce the specification and retort that the work was classified to be in the lowest quality? The whole question required careful consideration, and they were indebted to Mr. Clarkson for having brought the matter forward.—Mr. J. Osborne Smith thought that the builder, if supplied with a properly drawn out specification and drawings, would not make any mistake as to the class of building required. He thought the present system was a clearer method than a system of classification would be.—Mr. Max Clark did not see what possible object would be obtained by the proposed classification. He thought they ought to build as well and as soundly the dwellings of the rich as of the poor. Therefore, it seemed to him that it was principally the ornate quality and elaborateness of the workmanship with which they had to deal in economising. It was no use discussing this question in the abstract; the paper itself did not enlighten on in the slightest degree, and before the matter was disposed of it should be reduced to a little more definite shape.—The Chairman summed up the discussion, and in acknowledging a vote of thanks Mr. Clarkson said he was not surprised that so many of the speakers pointed out the difficulties standing in the way of his proposal. That it was a matter of difficulty no one could fail to recognise; he was surprised, however, that his suggestion had been so little recognised as desirable. However, he did not propose to drop the subject, believing it was capable of fuller presentation.

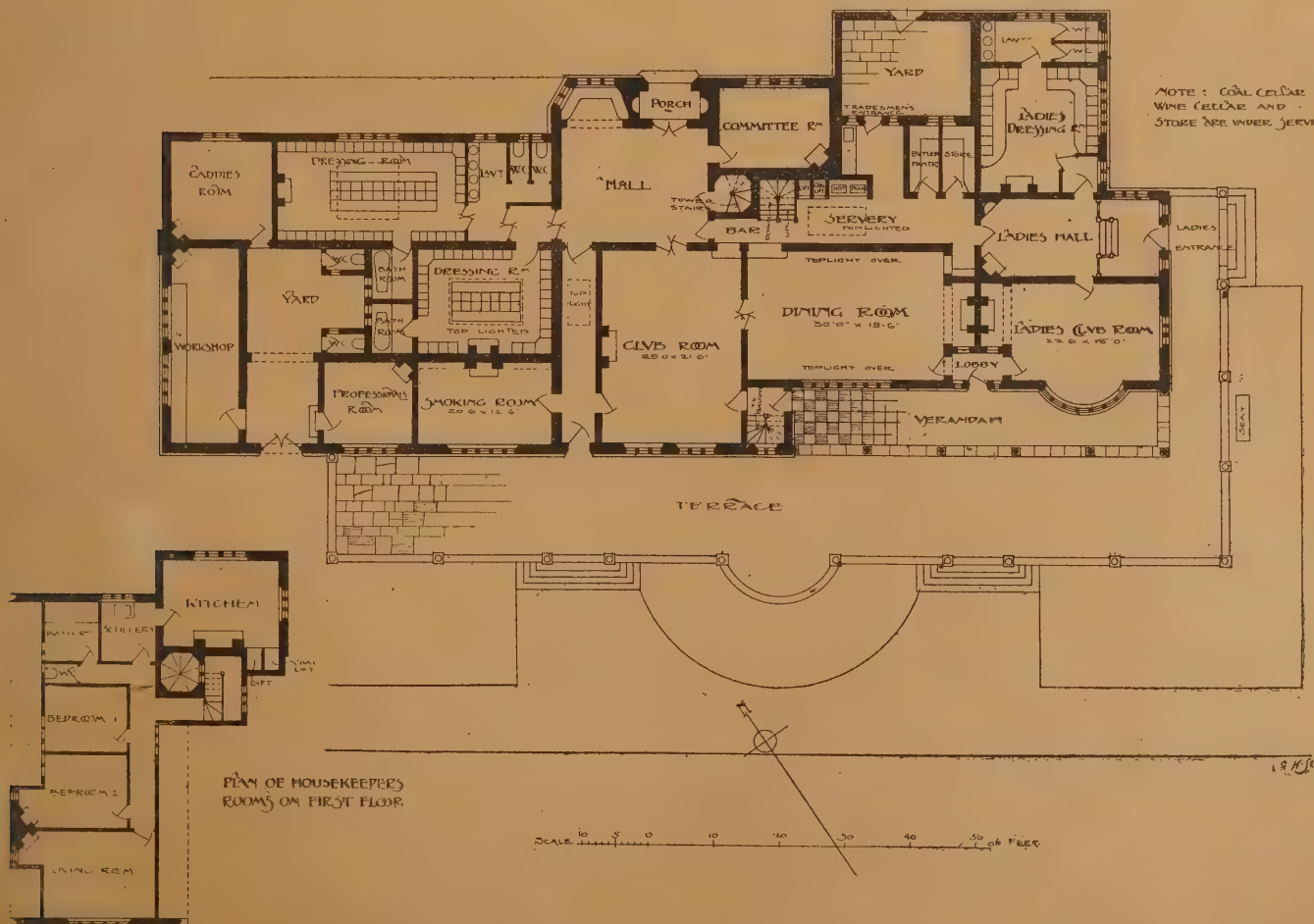
Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
November 10th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ST. PATRICK'S CATHEDRAL, Melbourne, has just been consecrated. It has taken forty years to build, and has cost £240,000. A sum of £7000 was contributed during the day of consecration.

THE Royal vault at Windsor, where the remains of the Duchess of Teck have been deposited, was built by George III., and intended to contain eighty-one bodies. The chalk rock beneath the Chapel was excavated to the depth of 15ft., the vault being of the same dimensions as the building above it—70ft. long by 28ft. wide. It has a vaulted stone roof, resting on massive octagonal columns, which also support the ranges of stone shelves on which, as well as on the twelve stone tables at the east end and in the centre, the coffins are placed. Here rest the remains of twenty members of the Royal Family. At the east end of the vault are the coffins of George III. and Queen Charlotte. The late Duke of York, who died in 1827, lies



A.A. COMPETITION. PRIZE PLAN, BY H. I. TRIGGS.

in the north-east corner of the crypt. The coffins of George IV., William IV., Queen Adelaide, Princess Charlotte and her child, the Duke of Kent, Prince Harold of Schleswig-Holstein, the infant son of Prince and Princess Christian, the King of Hanover and Princess Victoria, infant daughter of Princess Frederica, rest upon the stone tables in the middle, while those of Princess Amelia and Augusta, the Duchess of Brunswick and others are also in the vault.

INTERNATIONALISM in works of Art, if it has not extended to England or to the purchase of

English works of Art by foreign Governments, is being actively pursued abroad. The German Government has bought for the National Gallery works by the French artists, Cazin and Sisley, and the Italian Government works by Julien Dupré and Alfred Smith—French and American respectively.

THE Japanese are contemplating the building of a railway bridge across the Strait of Shimonoseki, which will enable passengers to go without changing carriages from the extreme south of Kinsin to the north of the

mainland. With adverse conditions to surmount, the bridge, if constructed, will be the most wonderful in the world, not excepting the Forth Bridge. But if it is humanly possible, the Japanese engineers are not likely to be balked of success. Among the 2000 odd members of their Institute are some of the most competent men to be found in any country. The arrangements for the theoretical training of engineers, and indeed for technical experts generally, are more complete in Japan than in England, and the best men invariably acquire the best practical experience abroad.

A GOLF CLUB HOUSE



A.A. COMPETITION FOR GOLF CLUB HOUSES. HON. MENTION PLAN. BY W. D., CLAPHAM.

SIR J. WOLFE BARRY, President of the Institution of Civil Engineers, was the principal guest at the monthly house dinner of the Camera Club, 28, Charing Cross Road, W.C., and in responding to the toast of "Our Guests," proposed by the chairman, spoke of the relationship existing between photography and engineering, and instanced several ways in which he had found photography of assistance to him in engineering works. In the construction of underground railways, for instance, he had, by means of photographs taken before the commencement of the work, been able to prove that cracks in buildings which were said to have been caused by the construction of the railways existed prior to their inception. He began the practice of photographing buildings along the line of route of such railways thirty years ago, and it had proved to be of the greatest assistance. The uses and value of photography were, indeed, increasing every year. He, who came from an architectural family, had always been able to realise its intense value in the Art of Architecture.

THE extensive building operations which are taking place round the south-western corner of Lincoln's Inn Fields are completely changing the aspect of the neighbourhood. Where Portugal Street and Portsmouth Street meet there still stands the quaint old house with the legend painted on the front that Dickens has immortalised by making it the home of Little Nell. The "Old Black Jack" tavern was pulled down last year. The whole place reeked with dirt, filth, and uncleanness, and was a danger to London at large. Although some time must elapse before the clearance is made complete, there is no question as to the improvement in more senses than one.

A CURIOUS exhibition of artistic convict work has recently been held in New York. The exhibits reached a high level of excellence, and included examples of wood-carving, articles of furniture, and some fine plaster casts, the latter of which was made by a young Italian convict for the prison chapel. The man under whose direction all the Art work has been done is a convict, who, in his own profession as an architect, was able to earn from £1000 to £2000 a year by the exercise of his profession. There is a regular Art "School of Design," as it is called, in Sing Sing Prison, and the "students" are not only taught freehand and sketching from models, but wood-carving, modelling in clay, and colour work, while there is also a course in designing. The principal teacher in the Art school is a convict who was a skilful furniture designer, and his assistant was an Art student before he entered the prison on conviction in that highly-specialised branch of artistic imitation—forgery.

A CORRESPONDENT asks whether it is not possible for the authorities charged with the maintenance of the Strand and the Thames Embankment to arrange that both of these thoroughfares should not be under repair at the same moment. While one is "up" the other should be kept absolutely free from obstruction to traffic, thus preserving at least one unimpeded artery from the City to the West End. At present the system adopted is to have repairs and alterations effected bit by bit on each at the same time, the result being that carriages are compelled to "dodge" down side streets every now and again, with consequent waste of time and loss of temper to the occupants.

THERE is now a favourable opportunity for widening Southampton Row, Holborn, owing to the leases of property in the neighbourhood running out and the freeholder, in the person of the Duke of Bedford, being prepared to negotiate with the Council for the sale of his freehold interest. Southampton Row, besides accommodating the general through traffic from the north of London, forms the principal outlet for the traffic southwards from Euston, St. Pancras, and King's Cross railway stations. The Improvements Com-



A.A. COMPETITION FOR GOLF CLUB HOUSE. BY W. D. CLAPHAM.

mittee of the Council asks to be empowered to proceed with the work of widening the thoroughfare between High Holborn and Theobalds Road, the estimated cost being £149,500.

WITH a view to increase the width of the Lower Richmond Road, the Star and Garter, at Putney, just above the bridge, is to be demolished shortly. The Lower Richmond Road at this point is not only extremely narrow—it is less than 15ft. in width—but close to the famous inn mentioned there is a dangerous bend, which has been the scene of a number of accidents. As the thoroughfare is a main one, leading directly to the Ranelagh Club, the project of improving it has been the subject of a numerous signed petition. The Wandsworth and Putney officials at once formulated plans, which have been approved by the London County Council, to increase the width of the roadway to 45ft., and, by straightening it just beyond the Star and Garter, obviate the danger to the occupants of traps and bicycle riders. The inn dates back over 300 years. Its low taproom, its quaint bar parlours, and its pleasant balconies linger in the memory; and until the embankment was built in, and a lower road along the riverside constructed, flights of steps ran from the bar right down to the water. The old house, standing as it does within a stone's throw of the Leander, the Thames, and the London

Rowing Clubs' boat houses, has innumerable boating associations. Nearly all the champion oarsmen of other days have trained here, and not long since the Cambridge crew made this establishment its headquarters. Mr. Philip Davis, the proprietor, intends to erect a larger and improved Star and Garter on the site of the present one. The new building is to be of granite and white stone. The plans contemplate a great house, with rows of balconies, and a carriage drive, while the increased space for the roadway will be secured by utilising the site of the present kitchens, which in the new structure will have a place at the top of the building. There will be a dining hall capable of seating 300 people, a band-stand and fountains, and a bijou opera house. A little higher up the river on the other side another ancient licensed landmark is about to disappear. The old Crab Tree beerhouse, which has been so far preserved from the encroachments of the nineteenth century by the fact that it stands in the midst of an impenetrable forest of market gardens, has succumbed at last to the tendencies of the times. The old house is shortly to be pulled down to make way for a modern brass and mirror pub.

ONE hundred million francs (£4,000,000 sterling), is the sum which has been set apart to defray the expenses of the Paris Exhibition of 1900. According to the Figaro,

twenty-one and a half million francs will be the cost of the two palaces in the Champs Elysées, those in the Champ de Mars costing eighteen millions, on the Esplanade des Invalides five millions, and those on the quays one million and a half. The bridges across the Seine will cost five millions, of which the Pont d'Alexandre III. will take the greater part. The mechanical and electrical service will use up 6,750,000 francs. To the circular railway will be appropriated a million and a half. Illuminations and lighting will take 800,000 francs, and fountains and decorations of the gardens 1,200,000 francs.

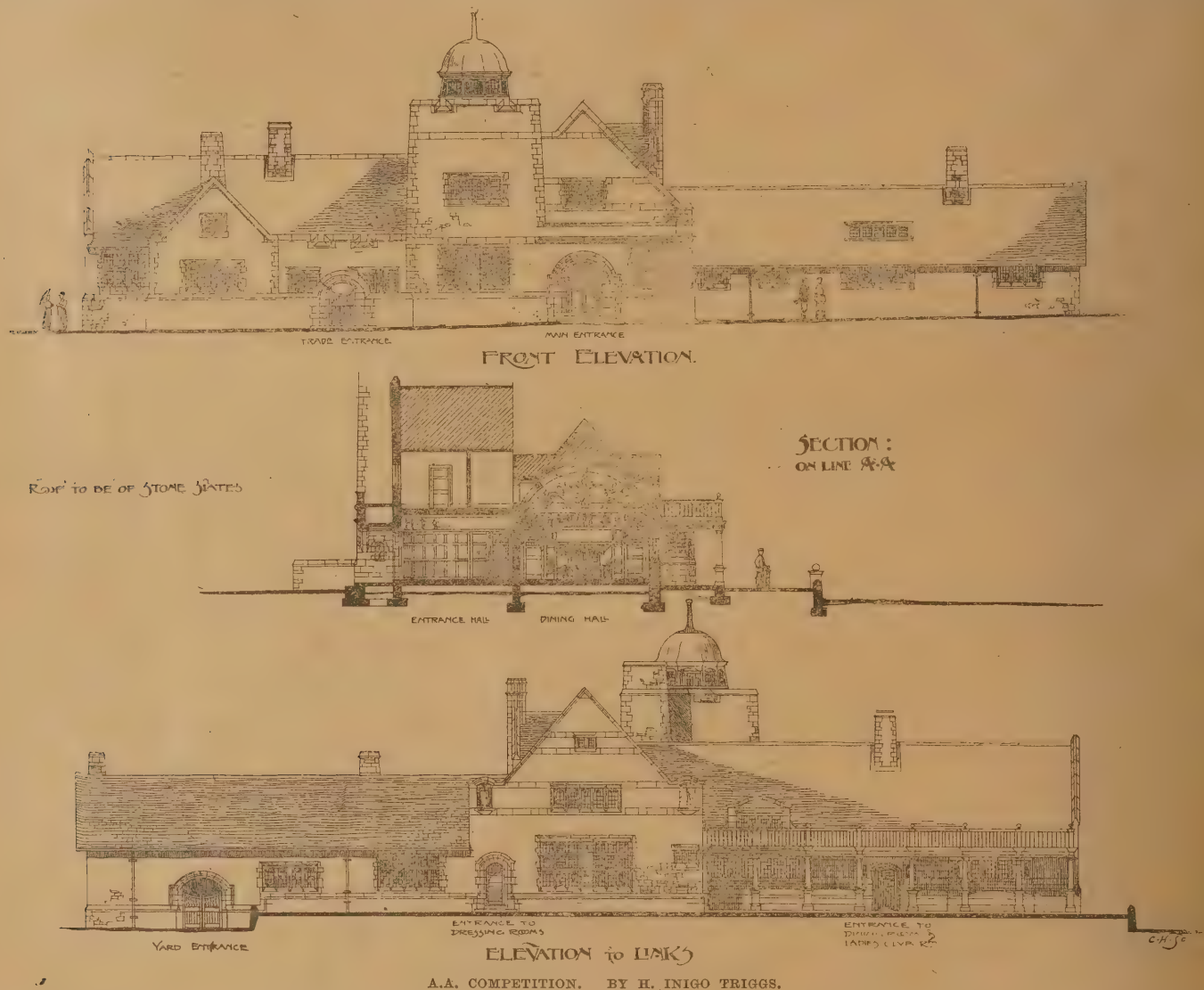
HIS MAJESTY the King of Hungary is particularly desirous that Hungary should be represented in a worthy manner at the Paris Exhibition of 1900, and has given instructions that the new wings of the ancient Castle of Buda, now in course of construction, shall be

painting for the Guildhall, and this bids fair to be a work of real importance.

HERR UHDE's picture of "The Ascension," which was purchased by the Bavarian Government at the recent Munich Exhibition for the considerable sum of £1300, has centred round it a vast amount of controversy. The Minister of Public Morals has raised objection to the lack of divinity in the principal figure, and the artist is said to have admitted this and offered to repaint it. The committee which controls the museum has to decide whether or no this shall be done.

THE Société Nationale des Beaux Arts—a society founded in 1890 on the schism in the Old Salon, and which has since held its exhibitions under the better-known name of the "Salon du Champ de Mars"—has determined upon an act which will apparently close the

Much satisfaction has been given to residents in Brighton by the announcement that Sir Edward Sassoon has presented to the municipality, for erection in one of the public parks, five allegorical figures, representing Night, Morning, Truth, Welcome, and Fidelity. The figures, which are 8ft. in height, previously formed part of the ornamentation of Sir Edward's new house in Park Lane, the mansion erected by the late Mr. Barnato. They stood on the balcony facing Stanhope Street, and are the work of Mr. Gilbert Seale, to whom Mr. Barnato gave a commission for them almost exactly twelve months ago. Sir Edward, on acquiring the mansion, decided on modifying some of the architectural details, so as to bring them more into accord with his own taste. These five figures were among the features of the building that he considered might be put to other uses. He also offered the Corporation a group of carved recumbent



proceeded with in haste, and this work generally completed as soon as possible, as it is his special wish that a reproduction, the full size of the original of St. Stephen's Hall (built in the early Roman style), with its entire interior decoration and furniture, should be shown in the Hungarian Section of the Exhibition. This section will also contain numerous historic and Art treasures which were exhibited at the Hungarian Millennial Exhibition last year.

THIS week, the Lord Mayor is to unveil Mr. Solomon J. Solomon's wall painting of "Charles I. at Guildhall," the third of the series of decorations for the Royal Exchange; and before long other canvases by prominent living painters will be put in position in the same building. Mr. A. Gow, too, is making rapid progress with the picture of the Thanksgiving Service on Jubilee day, which he is

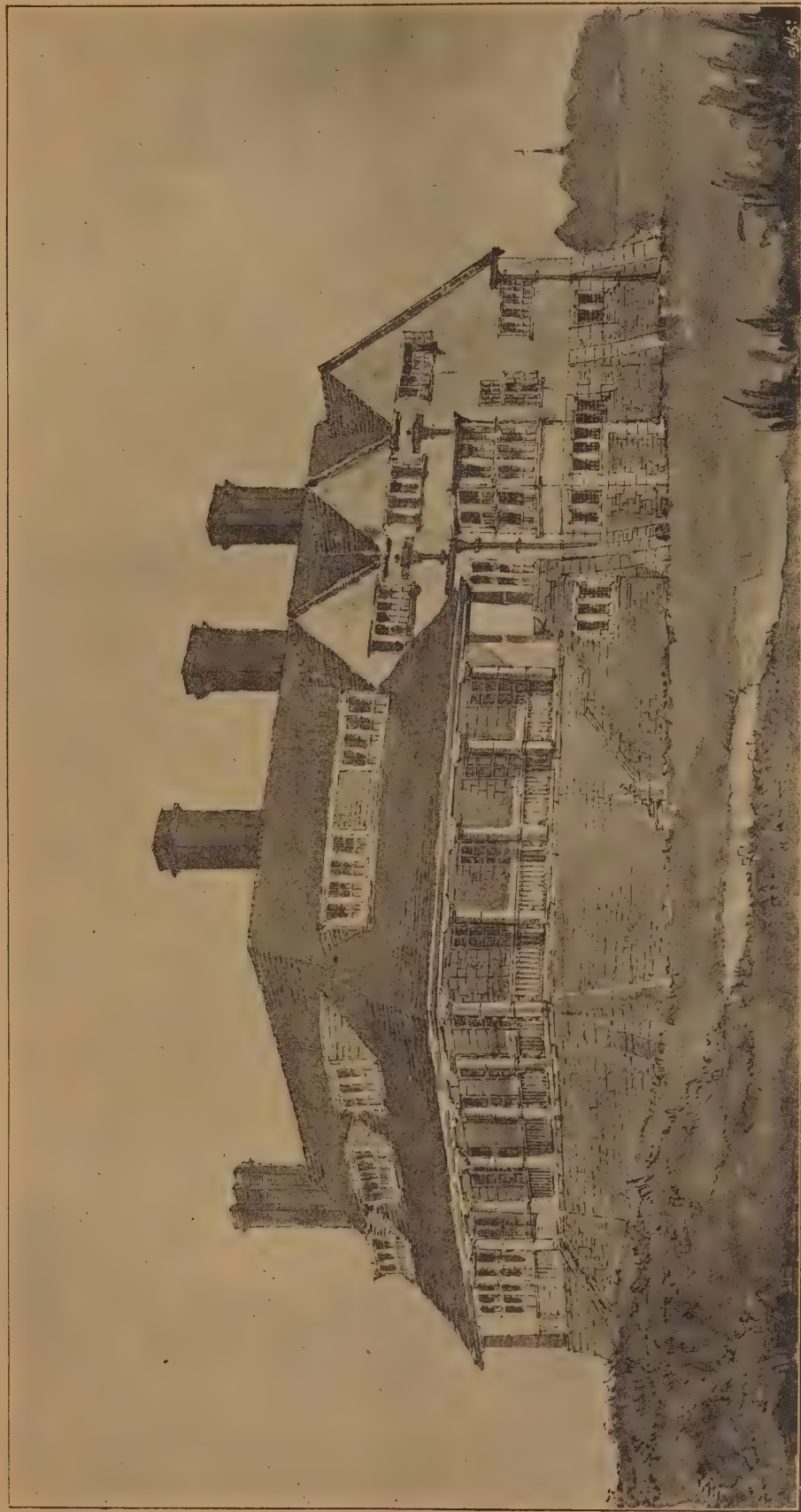
doors to any chance of reconciliation between it and the older body. It is announced that it has arranged with the city of Paris to lease a large space of ground at the Porte du Bois de Boulogne, and close to its most frequented entrance, and thereon it will build a palace which will be ready for the Exhibition of 1898—that is, in six months.

THERE are one or two passages in Tennyson's biography which deserve to be noted from their connection with Art. For instance, we have him writing concerning Ruskin in 1844: "Another book that I long to see is that on the superiority of the modern painters to the old ones, and the greatness of Turner as an artist—by an Oxford undergraduate, I think. I do not much wish to buy it; it may be dear. Perhaps you could borrow it from Rogers" (the poet). "I saw it lying on his table."

figures, then in site over the main entrance to the mansion, but which he had decided to remove from that position in the course of the other alterations to which the stonework is to be subjected. The figures have since been lowered from their situations on the balcony, but remain for a time at Park Lane until arrangements for re-erecting them in Brighton can be completed. As it is advisable not to subject them to more risk of damage than is absolutely necessary, it is considered that the best course is to leave them where they are until the pedestals required for them have been provided and placed in position. Upon the character of these pedestals the committee will pay the sculptor the compliment of asking his opinion. Two of the figures will be placed in the Northern Garden, and three—probably Night, Morning, and Fidelity—in the Southern Garden.

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A.A. GOLF HOUSE COMPETITION. HON. MENTION DESIGN. BY W. D. CLAPHAM.

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SUPPLEMENT.

NOVEMBER 10TH, 1897.

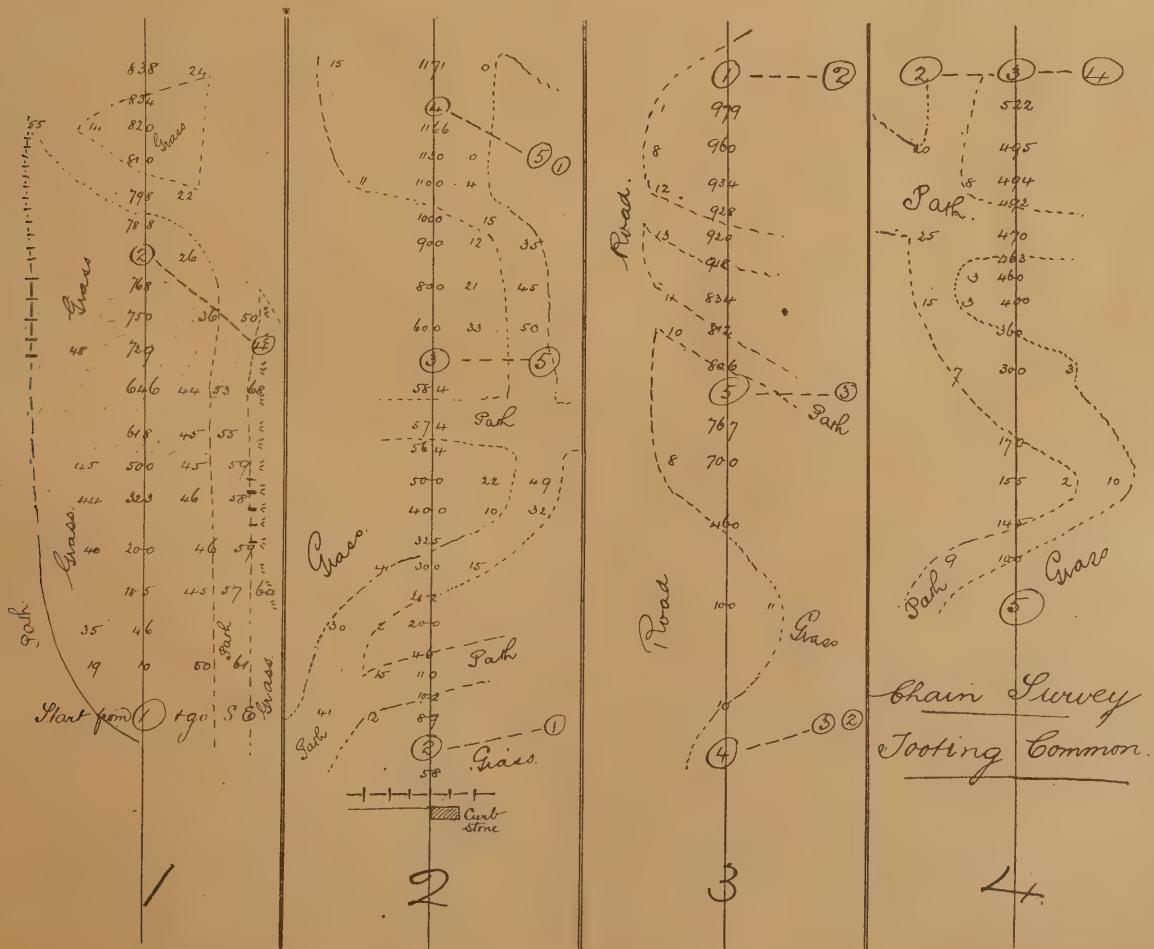
The Single Line Field Book.

BY G. A. T. MIDDLETON, A.R.I.B.A.

THERE is a constant contention amongst surveyors as to the respective advantages of the single and double line field book, and while a great many now use the single line, it is somewhat unfortunate that the principal instrument-makers do not sell a book so ruled. Its chief advantage is that it enables the sketching to be more continuous and clear; while the advocates for the double line say that it does not keep the chain readings sufficiently distinct from the off-sets. This may be the case with an indifferent or careless draughtsman, but anyone who values a neat book would keep his figures as dis-

tinct upon the one system as upon the other, and would certainly appreciate the extra space at liberty for sketching on either side of his main line. Where the double line is used, many more conventionalities have to be adopted than for single lines. When boundaries cross the chain, for instance, it is necessary to break the sketch, which the accompanying drawing will show to be continuous in the single line book. Similarly, when a station is reached, it is possible, with the single line book, to show it in its position on the line, with the other chain lines branching from it approximatively in their correct directions. Of course, in both books the entries are commenced at the bottom of each page, and the off-sets are entered to right and left as they occur, and a second line is never commenced upon the same page as the first, it being wiser to

waste paper than to confuse a survey. Similarly all entries in the field book are made on the near side of the object to which they relate. Thus, on page 1 the entry of 768 on the chain line represents the number of links between Station 1 and Station 2, while 788 is the number of links from Station 1 to the near side of the crossing path. Similarly on page 2 number 564 represents the distance in links of the near side of path from Station 2, and 574 the distance of the further side of path, 584 being the distance of Station 3. The same thing is done with the off-sets. On page 1 there are three off-sets at a distance of ten links on chain line from Station 1. There is an off-set of nineteen links on the left to edge of path, while on the right there is an off-set of fifty links to the near side of path, and one of sixty-one to the further side, all these being measured from the chain line.



FILTER PRESSES FOR SEWAGE SLUDGE.*

By JAMES CROLL.

(Continued from page 241.)

IN those filter presses first put down the feed passages are 3in. diameter, whereas those of the later presses are 4in. diameter. This was arranged as a partial preventative to the blockage of the feed passages, and it has been found very valuable in that respect. The drainage surfaces of the plates are not pyramid pattern, but simply grooved vertically, and the bevel edge at the rim is carried inward 2½in., thus avoiding sharp angles, and consequently the excessive wear and tear of the cloths which took place in the presses first erected, the bevel being 1 in 3.

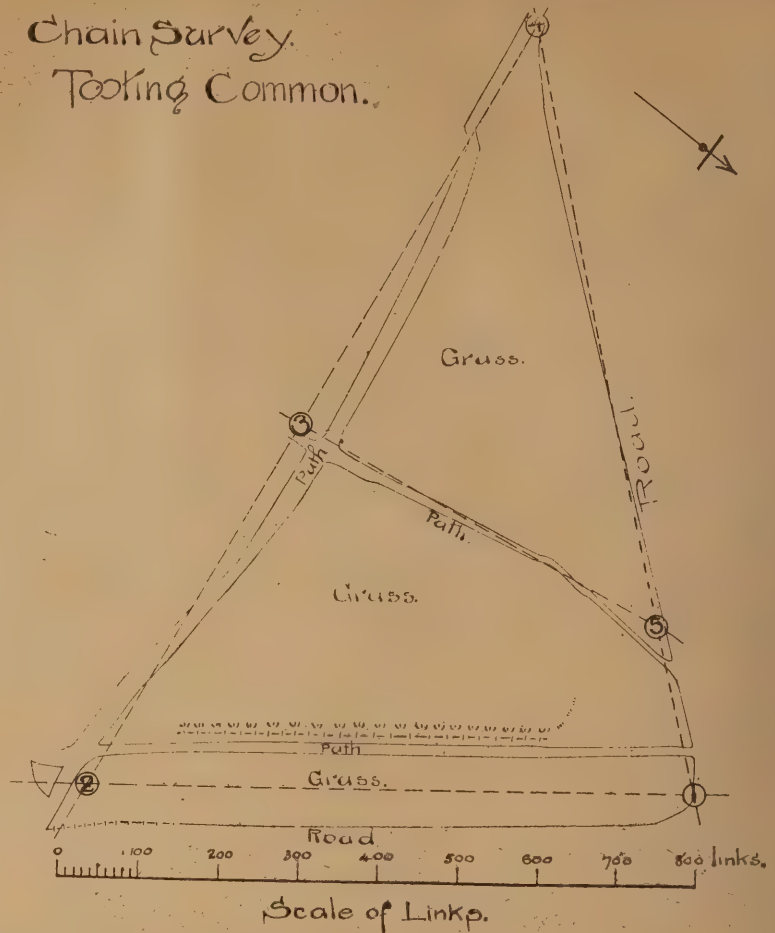
The projections or bosses on the surface of the plates are also made with an easy taper for the same purpose. The opening and closing gear is also of different design, and consists of a 4in. screw working in a screw bush, 8in. long, the power for turning being obtained from a worm and worm wheel worked by hand from a capstan wheel 2ft. 6in. diameter. Although this gear is not more powerful or quicker in its action than the other it takes up less space, and was adopted so as to avoid altering the roof timbers of the building.

When the additional plant was erected, provision was made for removing the steam cylinders and pump end of one of the forcing engines, and providing two larger steam cylinders and two double acting air compressing cylinders, the other parts of the engine remaining the same. The steam cylinders are 8in. diameter, and 12in. stroke, and the air cylinders 7in. diameter, and 12in. stroke, jacketed with water in circulation. The pistons are of the buffer type, with springs so as to avoid clearance at each end of the stroke. The valve boxes are cast on the cylinder covers, and are provided with a quick opening and closing arrangement for access to the valves, which are of aluminium bronze, and of sufficient area to allow of a low lift. In the valve arrangement each end of each cylinder is separately connected to the delivery main, and is provided with stop valves, so that either end can be cut off and the valve cleaned or replaced without stopping the engine. The cylinders can be worked single acting if desired, and by this means a high speed can be maintained, the whole arrangement being such as to give the highest efficiency.

The air storage receiver is made of ½in. mild steel plates rivetted together. It is 4ft. 6in. diameter and 12ft. long internally, and is provided with a safety valve, pressure gauge, and a dip pipe for the removal of condensed water. The sludge rams are of cast-iron, with hemispherical ends, and in three pieces with flanged joints bolted together. It is 5ft. diameter and 9ft. 6in. long internally, and is provided with a 6in. dip pipe and all the necessary valves and connections. All the stop valves in connection with the sludge main are

* A paper read at a meeting of the Society of Engineers.

Chain Survey.
Taking Common.



of the plunger type where they can be applied.

Before describing the method of working the foregoing plant, it may be desirable to mention that the sewage, before being treated, is passed through three screens, one of 1in. and two of ½in. mesh. The chemicals used for precipitation are lime and sulphate of alumina. The sewage is collected on the continuous flow system, the tanks being cleared about once in each week. For this purpose a floating arm and valve is provided, which will only permit of drawing the water down to within 4in. or 6in. of the top of the sludge, the whole of which is swept into the sludge reservoir together with the sludge, where the solids readily subside.

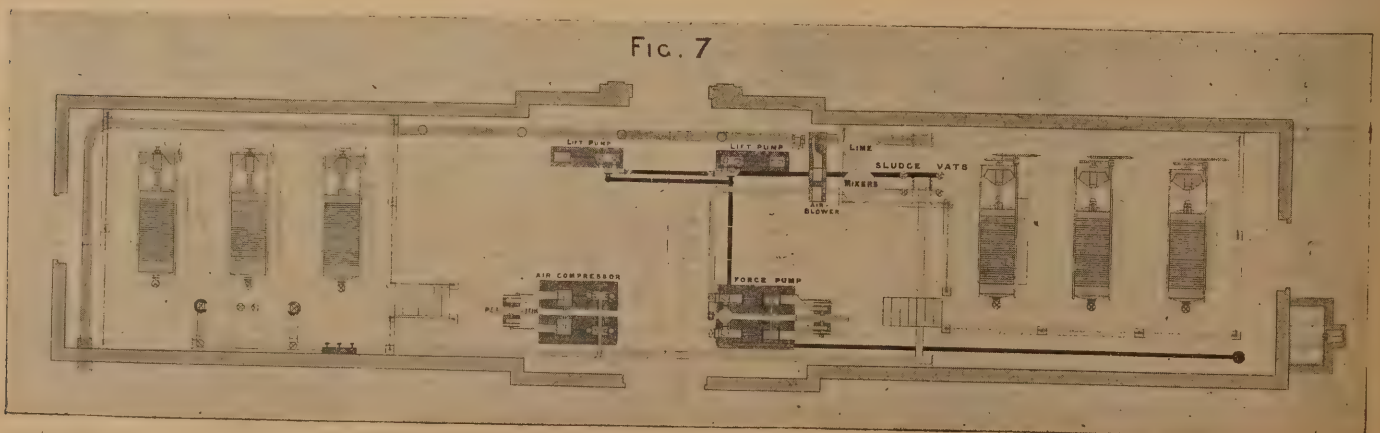
The water is drawn off the top by means of the skimmer already described, and is conveyed back to the untreated sewage chamber and mixed with the crude sewage as it enters the works. The sludge is raised from the reservoir by the lift pumps into the mixing tanks. Originally the suction pipe of the lift pump was placed in the centre of the pit, but it was found that the supernatant water flowed to that point and filled up the cavity made by the removal of the sludge, and had to be pumped up and forced through the presses

before a further supply of sludge could be obtained, causing a considerable delay in pressing, besides the extra wear and tear of the filter cloths. To obviate this, the suction pipe was extended to a point near the end of the pit, so that when the pump is at work the water flows to the suction pipe as before, and is readily taken off by the skimmer, which is situated near that point.

The following is the method of working the plant which is shown in Figs. 7 and 8:—The sludge is raised from the reservoir to the mixing tanks by the lift pumps. A proportion of lime varying from 3½ to 5 per cent. to the ton of pressed cake is slaked in the lime mixer and run into the mixing tanks. A jet of air from the single acting air-pump is admitted at the bottom of the tank, and the action of the air passing upwards thoroughly mixes the lime and sludge together. If it is desired to utilise the force pump system a valve is opened, and the limed sludge is conveyed through a 4in. pipe to the force pump, by which it is forced direct into the presses.

When it is desired to utilize the air pressure system, the sludge is raised to the mixing tanks and limed in the same manner as for the other system, and conveyed through a 6in. pipe to either of the rams. When the ram is

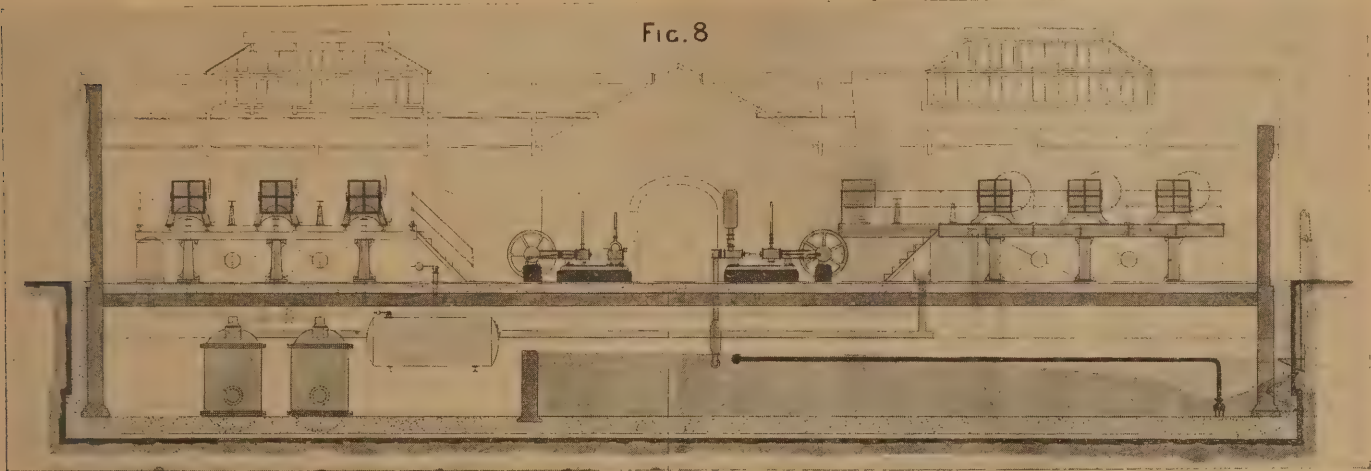
FIG. 7



charged and the necessary valves adjusted, compressed air from the storage vessel is admitted to the top and the mass is forced up the dip pipe into the filter press. Each ram when full contains a sufficient quantity of wet sludge to charge one press. While one is under pressure the other is charged and got ready to follow on. When another press is ready for charging, the air communication between the storage vessel and the rams is cut off, and the air in the ram under pressure is admitted through a bye-pass to the ram containing the fresh charge. The empty press

cost. As a result of these experiments a stout jute canvas is now employed. This material wears until the fibres become so matted together as to prevent the escape of the filtrate. Cocoa matting has also been tried, but the plates are unsuited for that material. Experiments have also been made with different kinds of lime for pressing. Grey-stone lime was found to be the best for the purpose, and is now used in lump form, the pneumatic lime mixers rendering the use of ground lime, with its extra cost for grinding, unnecessary.

The resident population of the district draining to these Works is 50,000 (in the summer months this is much increased), and the average quantity of sewage is from 40 to 45 gallons per head per diem, or a total of from 14 to 16 million gallons per week, exclusive of storm water. From this the wet sludge obtained is approximately 625 tons, which is reduced to from 110 to 120 tons of pressed cake, according to the time of year. To accomplish this, the pressing plant is in operation five days of ten hours each per week. The approximate cost at



is then opened and filled with sludge, forced up by the pressure of the waste air from the first ram. Thus a considerable saving of compressed air is effected, as the whole of the air must be allowed to escape before the ram can be again charged with sludge. The filtrate from the presses is collected in troughs and conveyed back to the untreated sewage chamber, and the pressed cake from the presses is dropped into tip wagons, on rails underneath. Each wagon is made to contain one ton of cake. The air-pressing system is usually employed, the force pump being retained as a stand-by or reserve. Before the air-pressing system was adopted, the breaking of a plate was of frequent occurrence, and maintenance became a somewhat heavy item. Although the sludge was screened before being forced into the press the feed passages occasionally became choked, and if at the same time one of the pump suction valves was hung up, the whole of the power from the two steam cylinders would be transmitted to the one plunger, and an unsteady rise in pressure occurred, resulting in the breaking of the plate. Since the adoption of the air system no fracture has occurred. When the force pump is employed, one of the air forcing rams is usually employed as a cushion vessel. Experiments have been made with different qualities of filtering cloth, it was found that the cheaper and thinner sorts answered as well as the better class, so far as filtering was concerned, but were worn out much quicker. Tanned canvas and copperised canvas was also tried. These lasted slightly longer than untreated cloth of the same quality, but not sufficiently long to compensate for the extra

Trials of the air pressing and the direct forcing system have recently been made, and the results are given in the following table:—

	By Air Compressor. Six presses. 26/1/97.	By Force Pump Three presses. 29/1/97.
1. Cubic feet of wet sludge	T. C. Q. LB. 133 7 2 11	T. C. Q. LB. 76 9 1 1
2. Pressed cake ...	29 3 3 4	15 5 3 6
3. Water ex- pressed ...	104 3 3 7	61 3 1 23
4. Total revolutions No.	44,574	27,484
5. Average revolu- tions per min.	72.47	43.97
6. Average mean pressure ...	26.512	17.292
7. Average pressure in presses lbs. per sq. in. ...	76.3	57.66
8. Indicated horse power of steam cylinders ...	11.70	2.60
9. Time in hours ... (Labour same in both cases).	10	10

It will be observed that the trial of the air pressing system was made with six presses in operation, and the direct forcing system with three presses, so that for a comparison of the two results the figures of the direct forcing system must be doubled.

present per ton of pressed cake is as follows:—	
Labour	10d.
Lime	9d.
Cloths	4d.
Coal, oil, &c.	3d.
	2s. 2d.

THE London and North-Western Railway Company has under consideration the question of improving its main line between Tebay and Shap Station. At present the railway crosses Shap Fells through a rock cutting 60ft. deep. When that cutting was made half a century ago it was considered a great engineering feat. As many as 500 men were employed upon the cutting at one time; twenty-three tons of gunpowder were used in blasting the rock; and the work occupied two years. It would obviously be of great advantage if the additional "road" could be made upon easier gradients, instead of side by side with the existing permanent way. Surveyors have therefore been engaged during the past autumn in trying to find a better route than that which Stephenson founded, and they have staked one out, which is at present under consideration. It strikes off the present line a little north of Tebay, and, passing along the valley of the Birk Beck, passes close by Shap Wells, and then enters a tunnel about two miles in length, by means of which the worst part of the present ascent is got rid of. The line then rejoins the existing railway near the Shap Granite Works. An alternative route takes the line near to Kendal and joins the present railway near Lowther Park.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Nov. 13	Christchurch, Hants.—Workhouse Ward	Guardians	A. Druitt, Clerk, Workhouse, Christchurch.
" 13	Pontefract—Hospital	Joint Hospital Board	Tennant and Bagley, Architects, Pontefract.
" 13	Great Cornard, Suffolk—Building Latrines, &c. ...	School Board	H. C. Canham, 68, Friars-street, Sudbury.
" 13	Hawes—Market Hall	Streets Committee	J. P. Kay, 34, Prudential-buildings, Park-row, Leeds.
" 13	Lancaster—Boundary Wall	Urban District Council	Borough Surveyor, Town Hall, Lancaster.
" 13	Swindon—Semi-detached Villas	T. H. Deacon	W. H. Read, Architect, Corn Exchange, Swindon.
" 15	Hornsey, N.—Central Library	Urban District Council	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N.
" 15	Plymouth—Market	Urban District Council	King and Lister, 8, Princess-square, Plymouth.
" 15	Hampton Court—Coach House, Stables, &c. ...	Urban District Council	H. Tagg, Thames Hotel, Hampton Court Bridge.
" 15	Lancaster—School Alterations, &c.	Urban District Council	Austin and Paley, Architects, Lancaster.
" 15	Lynton, Devon—Cottage Residence	Urban District Council	G. C. Smyth-Richards, Surveyor, Barnstaple.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Nov. 15	Neath—New Hotel	E. E. Bevan	J. C. Rees, St. Thomas's-chambers, Church-place, Neath.
" 16	Acton—Fire Engine Station	District Council	D. J. Ebbetts, 212, High-street, Acton.
" 16	Fenwick—Alterations, &c., to Chapel		T. Latham, Chairman of Parish Meeting, Fenwick.
" 17	Wilton-le-Dale, Lancs—Cottages	Urban District Council	F. E. Dixon, Engineer, Bank-chambers, Fishergate, Preston.
" 18	Stockwell, S.W.—Reconstructing Hospital Flues, &c.	Metropolitan Asylums Board	F. W. Aldwinckle, 1, Victoria-street, S.W.
" 19	Port Talbot—Police Station, &c.	Glamorgan County Council	County Surveyor, Westgate-street, Cardiff.
" 19	Burnham, Essex—Seven Dwelling Houses	Admiralty Works Department	Avenue House, Northumberland-avenue, W.C.
" 19	Thorne, Yorks—Renovating Chapel	Trustees	G. W. Spofforth, The Green, Thorne.
" 20	Ystradgynlais, Wales—School Buildings	Higher School Board	R. Morgan, Coelbreh-house, Onilwyn, via Neath.
" 22	Brentwood—Extension of Clerk's Offices at Asylum	Visiting Committee	W. P. Gepp, Clerk, Chelmsford.
" 23	Lewisham—Coroners' Court and Mortuaries	Board of Works	Surveyor's Office, Board's Office, Lewisham S.E.
" 25	Ballyhaise, Ireland—Two One-Story Cottages	Great Northern Railway Company	Engineer-in-Chief, Amiens-street, Dublin.
" 25	Burton-upon-Trent—Retorts, Bricks, &c.	Corporation	F. L. Ramsden, Manager, Gas Works, Burton-on-Trent.
" 30	Chatham—Post-Office	Postmaster General	Postmaster of Chatham.
Dec. 4	Pontefract—Hospital Buildings	Joint Hospital Board	Termant and Bagley, Architects, Pontefract.
" 26	Buenos Ayres—Central Railway Station		Legation of the Argentine Republic, London.
No date.	Cork—Iron Roofing, &c.	N. Ross	A. Hill, Architect, Cork.
"	Cork—Two Semi-Detached Villas		D. J. Buckley, 21, Adelaide-street, Cork.
"	Keswick—Stone Wall		Red House, Keswick.
"	Leeds—Two Houses		—Wray, Spencer-lane, Leeds.
"	Maunby, near Gt. Yarmouth—Alterations to Rectory, &c.		Rev. J. N. Dredge, Maunby.
"	Rochdale—Minister's House	Wesley Circuit Trust	T. Townend, jun., District Bank-chambers, Rochdale.
"	Wilton-on-Naze, Suffolk—Two Shops, &c.	W. B. Greenwood	C. E. Butcher, 3, Queen-street, Colchester.
"	Woodham Ferris, Essex—Cottages		—Broke, 18, Northumberland-grove, Tottenham.
"	Leeds—Factory, &c.	F. Kitchin	W. S. Braithwaite, 6, South Parade, Leeds.
"	Ilkley—Two Villas		T. C. Hope, Architect, Old Bank-chambers, Bradford.
"	Bradford Five Houses		Wood and Suttel, Beaumont-road, Whetley-lane, Bradford.
"	Manningham—House		Walker and Collinson, Architects, Swan-arcade, Bradford.
ENGINEERING—			
Nov. 13	Glasgow—Laying Mains, &c.	Corporation	—Gale, City-chambers, 45, John-street, Glasgow.
" 13	Aarhus, Denmark—Engine and Pumps		Director of Waterworks, Aarhus.
" 13	Mundesley, North Walsham, Norfolk—Waterworks, &c.	Erpingham Rural District Council	Merryweather and Sons, Greenwich-road, S.E.
" 13	Aber, near Aberpilly—Pit Sinking	Windsor Steam Coal Company, Ltd.	Foster, Brown and Rees, Guildhall-chambers, Cardiff.
" 15	Plymouth—Hopper Barge	Corporation	J. Paton, Borough Surveyor, Plymouth.
" 16	Heywood—Coke Elevator, &c.	Gas Committee	W. Whatmough, Gas Manager, Municipal-bldgs., Heywood.
" 17	Burnley—Electric Light Cables	Corporation	W. R. Wright, Electrical Engineer, Town Hall, Burnley.
" 18	Leeds—Heating Hospital	Corporation	City Engineer, Municipal-buildings, Leeds.
" 20	Edinburgh—Heating and Ventilating Hospital	Corporation	Superintendent, Public Works Office, Edinburgh.
" 22	Blackpool—Electric Traction (Four Contracts)	Corporation	R. C. Quin, Corporation Electricity Works, Blackpool.
" 22	Bexley, Kent—Laundry Machinery, &c.	L.C.C. Asylums Committee	W. P. Partridge, 21, Whitehall-place, S.W.
" 23	Birkenhead—Steel Boiler	Corporation	Ferry Manager's Office, Woodside, Birkenhead.
" 25	Crafova—Right of Water Supply	Town Council	Mayor's Office, Crafova.
Dec. 6	Southampton—Pontoon, &c. (Two Contracts)	Harbour Board	E. C. Poole, 4, Portland-street, Southampton.
" 14	Bruges, Belgium—Harbour Works		Provisional Government, Bruges.
" 31	St. Gilles-lez-Bruxelles—Gasworks	Council	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway	Government	Central Directorate, Public Works, Porte Alegre.
1898.			
Feb. 28	Pernambuco—Port Works	Government	Brazilian Ministry of Public Works, Rio de Janeiro.
FURNITURE AND FITTINGS—			
Nov. 17	London, S.W.—Furniture	Metropolitan Police	Receiver, New Scotland Yard, London.
" 17	Moultsford, near Wallingford—Asylum Furniture	Guardians	Steward, Moultsford Asylum, near Wallingford.
IRON AND STEEL—			
Nov. 13	Glasgow—Cast-iron Pipes, &c.	Corporation	—Gale, 45, John-street, Glasgow.
" 13	Lancaster—Wrought Iron Railing	Streets Committee	Borough Surveyor, Town Hall, Lancaster.
" 16	London, E.C.—Various Stores (29 Contracts)	Bombay, Baroda, & Central India Ry. Co.	Offices, 45, Finsbury-circus, London, E.C.
" 16	London, S.W.—Cast-iron Plates, Sleepers, &c.	India Office	Director-General of Stores, India Office, Whitehall, S.W.
" 25	Hull—Steel Girder Tramway Rails, &c.	Corporation	A. E. White, City Engineer, Town Hall, Hull.
Dec. 3	Warrington—Stores (19 Contracts)	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
PAINTING AND PLUMBING—			
Nov. 13	Madrid—Forty Tons of Copper	National Mint	Fabrica Nacional de la Moneda y Timbre, Madrid.
ROADS—			
Nov. 13	Levenshulme, Lancs.—Paving, Sewering, &c.	Urban District Council	J. Jepson, 9A, Union-road, Stockport.
" 13	Mickleham, Surrey—Making Carriage Drive	L. Solomons	J. Bastin, Norbury Park Farm, Mickleham.
" 15	Romford—Tar Paving, &c.	Urban District Council	Surveyor's Office, Market-place, Romford.
" 15	Batley—Paving Materials	Town Council	O. J. Kirby, Borough Surveyor, Market-place, Batley.
" 15	Maidenhead—Kerb and Channel	Town Council	P. Johns, Borough Surveyor, Guildhall, Maidenhead.
" 15	Southend-on-Sea—Road-Making		G. D. Byfield, 32, Great St. Helens, London, E.C.
" 17	Richmond, Surrey—Road Works	Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond.
" 17	Benwell—Road Works	Urban District Council	W. F. Pattison, Offices, Atkinson-road, Benwell, near New castle-on-Tyne.
" 20	Paignton, S. Devon—Road-Making, &c.	P. E. Singer	R. J. Beadon, 165, Manor-street, Clapham, S.W.
" 22	Altofts, Wakefield—Levelling, Metalling, &c.	Urban District Council	W. Wilkinson, Surveyor, District Council Offices, Altofts.
" 22	Weston-super-Mare—Road-Making		Price and Wooler, Estate Surveyors, Weston-super-Mare.
" 22	Battersea, S.W.—New Road and Sewers		F. and W. Stocker, 90 and 91, Queen-street, E.C.
No date.	Manchester—Setts	Highways Committee	Chief Clerk, Highways Department, Town Hall, Manchester.
"	Shenfield, Essex—Road-Making, &c.		A. T. G. Woods, Surveyor, Brentwood, Essex.
SANITARY—			
Nov. 13	Westbury, Wilts.—Workhouse Drainage	Rural District Council	W. H. Stanley, District Surveyor, Trowbridge.
" 15	Kilbirnie and Glegarnock, Scotland—Drainage Works	Ayrshire County Council	J. Barr, 221, West George-street, Glasgow.
" 15	Plymouth—Removal of Refuse		J. Paton, Borough Engineer, Municipal Offices, Plymouth.
" 15	Beith—Filters	Ayrshire County Council	W. Williamson, Beith, Ayrshire.
" 15	Beith—Fireclay Pipes	Ayrshire County Council	W. Williamson, Beith, Ayrshire.
" 16	Rotherham—Pipe Sewers	Sewerage Committee	Borough Surveyor, Council Hall, Rotherham.
" 16	Lytham, Lancs.—Sewerage Works	Urban District Council	H. Baneroff, 88, Mosley-street, Manchester.
" 17	Ashington—Earthenware Branch Sewer, &c.	Urban District Council	A. Wood, Surveyor, Council Offices, Ashington.
" 18	Stevenage—Main Sewerage House Connections	Urban District Council	U. Smith, 41, Parliament-street, S.W.
" 23	Aston Manor—Sewers	Rural District Council	H. Richardson, Engineer, Council House, Aston Manor.
Dec. 1	Launceston—Sewerage and Sewage Disposal	Corporation	Town Clerk's Office, Launceston.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 20	Southend-on-Sea—Plans for Church...		St. Albans Church Committee.
" 25	Edinburgh—Schemes for heating, &c., Hospital		Public Health Committee.
" 30	Wells—Plans, &c., for Public Hall		Town Council.
Dec. 6	London, E.C.—Designs for Jubilee Medal...	£25, £15, £10 ...	City Corporation.
" 15	Dorking—Designs for Infirmary	2nd Prize, £15; 3rd Prize, £5.	Union Guardians.
" 16	Menai Bridge—Designs for Landing Pier	£40	Urban District Council.
1898.			
Jan. 8	Belper—Scheme for Water Supply	£15 15s., £5 5s.	Rural District Council.
Feb. 15	Port Elizabeth, S. Africa—Designs for Public Library	£105, £52 10s.	Public Library Committee.
May 1	Belper—Scheme for Sewage Disposal	£52 10s., £26 5s.	

THE ADVANCEMENT OF ARCHITECTURE.*

By PROF. G. AITCHISON, A.R.A.

(Continued from page 291.)

IN painting and in sculpture the student with a passion for either does not come fully armed, like Athené from Zeus' brain; anatomy has to be laboriously acquired, as well as the power of drawing or modelling the perfect human form; the art of composition has to be learned, as well as what sculpture and painting can properly represent. Architects are not born with a knowledge of statics, nor of the strength of materials, nor of the art of planning, nor of how to express the emotions that each particular structure should evoke; though we now see ornaments from the palaces of the Caesars, or from the boudoirs of Renaissance beauties, lavished on tailors' or oyster shops and on banks and insurance offices. I have seen the

GHASTLY ORNAMENTS OF ROMAN TEMPLES,

bullocks' skulls, on a bank, but I looked on these as a symbol of the architect. The Institute is a university—i.e., it does not teach but it examines, and informs students what they should know and where some of this information can be got. Amongst some the idea of teaching is almost a mania, and I admit that some things must be taught: the pronunciation of foreign tongues, the use of a foil or an oar; but, as far as I know, the Art of teaching is mainly non-existent. My experience of school teaching is this: I was put under a man who had mastered the subject I had to learn, and who was armed with a stick. He told me to learn a piece out of a book, and he allowed me what he thought was enough time to learn it in. If I did not know it, I was soundly beaten, and without doubt, this is a great stimulus to exertion. Lucian, of the Dialogues, was supposed to have a taste for sculpture, but his master thought he had not striven enough, and as he had broken a piece of marble, too, gave him so severe a beating that he abandoned the Art. Unfortunately

NO REAL TEXT-BOOK HAS BEEN WRITTEN ON ARCHITECTURE,

though all but how to produce the emotions proper to any structure may be picked up from various books. Those architects who can produce the proper emotions have something else to do than to explain the means they employ, even if they could explain them. And the knowledge, too, of the means used to produce emotions will not give the power to produce them, or else all the real critics of æsthetics would be poets, painters, sculptors, architects, or musical composers as well. You cannot suppose that those artists who have excited emotions have not tried to learn all they could from their predecessors. In the case of the poets at least we know that they have studied the works of their predecessors, and translated them when in foreign tongues, and paraphrased them when in their own; and though Horace's maxim is excellent, that "if you want to make your hearers cry, you must cry yourself," yet even when he did cry, he had to learn the precise mechanism for causing his hearers to weep. Architects must study and paraphrase those buildings and those members of buildings that have produced the proper emotions in them. An architect must also recollect that those who are to be moved by his building are not Greeks, Romans, mediævals, nor Italians of bygone ages, but the people of his own time. Still, if you can touch the master chords of humanity, they are not so very differently attuned now from what they were in the earliest times, or else we should not laugh at the wit of Aristophanes, of Rabelais, of Swift, or of Molière; nor cry over the pathos of Homer, Æschylus, Sophocles, Dante, or Shakespeare. We can at least see that an architectural student has the knowledge that he cannot

properly do without, and we shall find this alone will have a very good effect on the Profession; but it is almost impossible to divest men's minds of cant. The student is asked to know all sorts of things, some of which are interesting, some pleasant, and some dull, that have no bearing on Architecture. It is interesting enough to know that hazel nuts were shipped at Barcelona and currents at Patras, but we use

NEITHER DRY NUTS NOR CURRENTS IN ARCHITECTURE;

it is pleasant enough to understand Greek, Latin, Hebrew, and Sanscrit; French, Italian, German, Spanish, Portuguese, Russian, and Arabic; but they are no more architectural Arts than the broad-sword exercise or being able to shoot flying. It is interesting enough to know who built the Parthenon, or the Pantheon, or King's Cross, but it is no more Architecture than playing on the fiddle or dancing the polka. We believe that Nature perfectly adapts all her living works to the actions they have to perform without waste of material; and while some are exquisitely beautiful, some majestic, and some comic, others are commonplace, and some are repulsive, hideous, or frightful; but they all have character. It is only by studying Nature's works and former buildings, and deducing laws from them, that we can hope to cultivate that sense which makes us like one form and detest another, so I think that such a study is necessary for those who wish to become architects; for though

A KNOWLEDGE OF STATICS

will make our buildings safe, and prevent a want of due ratio between the parts, we must trust to a cultivated eye till the laws are discovered to make them beautiful, majestic, or sublime. We should, I think, make our students first design in old-world materials—wood, brick, stone, and marble—so that their designs can be compared with the existing successful monuments; but we have new materials which have to be brought within the pale of Architecture. In my opinion, we cannot do better than make students design in cast-iron when they have succeeded in designing in the old world materials. It is too expensive a material to disregard its statical conditions. It is difficult to arrange a column or a stanchion so that its capital may securely carry a heavy superstructure with a large base. It is difficult to make the base of this column or stanchion wide enough to transmit safely the weight it bears on to a foundation of much softer material; there are difficulties in the design of mouldings and floral ornament that can be cast; and there are absolutely no examples to imitate, so that the knowledge, care, skill, and invention of the student are called into play. We cannot believe that

THE INGENIOUS MEDIEVAL ARCHITECTS

would have foregone the use of such valuable and powerful materials as wrought-iron, cast-iron and steel, on account of Mr. Ruskin's objection that they were not mentioned as building materials in the Bible. It may be truly said that nothing can be effected in a structural art like Architecture by talking; but when a man is lost in a wood, and you can direct him to the road out of it, you have done him most effectual service. Architecture has been in a wood since the fifteenth century, and it can never progress until it gets out of this wood. The intelligent architectural student wants to know the mark he is to aim at, and how he may hit it; and I am afraid the general opinion would be that he is to learn to sketch in perspective, and when he asks what he should sketch, he would be told everything that appears to him interesting, striking, or beautiful, because when he gets into practice he will find that the public may ask him to build in any style the world has known. A good instance of the ignorant instructing the wise! He should be told that he has first to learn how to construct, and that the aim of Architecture is to make of each building an organism like Nature's, fitted to fulfil its duties as perfectly

as possible without waste of material, and to make it properly tell the tale of its purpose or purposes, and that if sculpture and painting can be afforded, he is to use them to tell its tale more completely. When the Associate's curriculum is amended I would reduce the examinations to two, a matriculation examination and a final one, for two reasons: first, because time would be saved; and, secondly, so that each student might keep up the knowledge and skill he had acquired. Professor De Morgan used to say that when an examination was passed, the students thought all the knowledge required for passing it might be forgotten, and looked on his asking again for subjects they had once passed as a fraud, as if they were asked to pay a second time when they had the receipt for the first payment. The final examination should include a certificate that the candidate has acted as clerk of the works on some building for at least six months, to familiarise him with real work, and to impress on his mind that it is building and not drawing that is wanted. These amendments would greatly improve the condition of Architecture; but Architecture would be more improved if there were an examination for Fellows as well. The complaint is that there is

A DEARTH OF FELLOWS,

and a proposition is made like that adopted by the Giver of the Scripture feast, that we should send into the highways and byways and compel them to come in. There would surely be no need of compulsion if it were felt to be an advantage and an honour to be a Fellow. It has been said that eventually every Fellow must have been an Associate, but the present conditions of the Fellowship offer a way to escape examination. No one, I imagine, objects to see really distinguished architects being admitted by acclamation; but at present there are only three real qualifications for the Fellowship—that the candidate is thirty years of age, is honest, and has been seven years in practice; though it is true that the Council look at the drawings turned out of his office. Someone said of a Prime Minister in Cobbett's day that he was honest; to which Cobbett replied that no one would take a footman if honesty were his only qualification, and put this question: "Shall that be the only qualification for a Prime Minister?" No one can say that physicians or surgeons do not desire and do not strive to be Fellows of their respective colleges, or that both are not better for having learned the necessary elements of their profession. The only objection to

A PROPER EXAMINATION OF FELLOWS

is that it is absurd to expect it from men of thirty years of age who have been seven years in practice. The physicians and surgeons saw the force of this, and though the examination may take place at twenty-one years of age, the title cannot be assumed until they are twenty-five. The Fellow's examination should only be more complete than that of the Associates; and the candidate should have a certificate of having acted as a clerk of the works for a year, and made out the necessary full-sized diagrams for the work on the floor. I have only one remark to make before I give my peroration. I am rather surprised that architects do not see that degrees of excellence are possible in Architecture; or, if they do see it, that they do not act on their convictions. The greatest living architects are contented with the same remuneration for their work as the apprentice just out of his time, and merely seek to get into a wholesale business. This greatly helps to degrade the Profession in the eyes of the public, and gives a very wrong impression of the facts, as every architect well knows. Thousands of public monuments have been erected in Europe since the Golden Age of Greece, not to speak of important private buildings; yet the Parthenon and the Caryatid Temple on the Erechtheion have never been equalled since, nor the interior of the Pantheon, nor the west front of Notre Dame at Paris, nor the Cornaro-Spinelli Palace, nor the Scuola di San Marco, nor the town hall of Brescia. In all the other Fine Arts the first successful effort brings its author next to nothing, but those produced in the height of his skill and

* The President of the Royal Institute of British Architects' opening address of the session 1897-98, delivered at the first General Meeting, held on Monday, November 1st.

knowledge mostly bring him wealth, if that be his desire.

THE GREAT DIOGENES WAS A BEGGAR, and Jean François Millet, the one artist in Europe according to the Japanese, was in poverty; and so was Alfred Stevens. Every architect knows that in the case of architectural works of moderate size it is a question if he is to gain or lose a five-pound note; and the more care he takes, the more certainly is the balance on the wrong side. The fashionable architect with a hundred buildings has a difficulty in persuading the Profession or the public that he bestows the same loving care on each of his hundred buildings that he would do if he had only two, and is apt to provoke the retort of the lioness to the beasts in *Æsop's Fables*. "There was a great stir made among all the beasts, which could boast of the largest family. So they came to the lioness: 'And how many,' said they, 'do you have at a birth?' 'One,' said she grimly; 'but that one is a lion.'" I cannot help desiring to see the pursuit of Architecture followed on sound principles, nor can I forget the absence of any system in my youth; for then, after you had drawn out examples of the Greek and Roman orders, genius was supposed to do the rest. I am delighted at the admiration of

OUR SMALLER DOMESTIC ARCHITECTURE

by our great morning newspaper, the *Times*, and by M. Paul Sédille in his "*L'Architecture Moderne en Angleterre*;" but I wish to see that admiration extended to our great public buildings as well. One sees to what lengths a proper architectural education may lead from mere savagery in the architectural triumph of the Middle Ages. If the true architectural high road could be again found all might hasten to the goal, and not be like the dragon's teeth when the stones were thrown into the middle of them. Who knows that in the case of the right road being found the public might not again take a passionate interest in the excellence of our Art, as it must have done at the great epochs? Modesty is a charming virtue in all, and especially in those of great intellectual endowments, but if this modesty is only to make us idle and worthless, let us throw it off. Let us no longer say we are so inferior to the ancient Greek, Roman, Byzantine, Saracen, Mediæval, and

RENAISSANCE ARCHITECTS

that it is no use trying to equal them. Have we relinquished the courage, daring, and self-reliance that once distinguished our race? If we have we must be contented to lag behind the rest of the world. If we are not equal to former races, and particularly to the Romans we so much resemble, I believe it is because we have got into a wrong road, and I would rather see architects take up the position of our Ambassador at the Court of the father of Frederick the Great than be ready to confess that the English are hopelessly inferior to the great architectural races. Frederick William, as you know, had a regiment of giants, and paraded them in front of our Ambassador, and asked him if he thought an equal number of Englishmen could beat them? The Ambassador said he could not say that, but he would undertake that half the number would try. I hope we are not worse than the men of Milton's days, and hear what he says of them: "Lords and Commons of England! Consider what nation it is whereof ye are, and whereof ye are the governors: a nation not slow and dull, but of a quick, ingenious, and piercing spirit; acute to invent, subtle and sinewy to discourse, not beneath the reach of any point the highest that human capacity can soar to. Therefore, the studies of learning in her deepest sciences have been so ancient and so eminent among us, that writers of good antiquity and able judgment have been persuaded that even the school of Pythagoras and the Persian wisdom took beginning from the old philosophy of this island. And that wise and civil Roman, Julius Agricola, who governed once here for Cæsar, preferred the natural wits of Britain before the laboured studies of the French." I firmly believe that the race has not degraded, and that if we will only again take up the right way of learning

we shall astonish ourselves and the world. May I not say:

"Men, my brothers, men the workers, ever reaping something new;
That which they have done but earnest of the things
that they shall do?"

To those who are not architects I may say that if you will devote yourselves solely to money-making and feasting, Architecture which mirrors the condition of nations at the time it is executed will certainly languish; for the admiration it should excite and the gratitude it should call forth is the very breath of its nostrils. It cannot, however, be said of the nation now that it is without aspirations, for there never was a time when so many were striving to penetrate the secrets of Nature, and the past acts and thoughts of man, and trying to yoke the power of Nature for man's use, and to teach and elevate their fellow-man and his help-meet. To women more liberty has been granted than Mary Wollstonecraft asked for, and they have achieved even more than she hoped for. But all these studies and pursuits rather throw our contemporaries off those primary delights that Nature gave to raise, to solace, and to purify mankind—I mean

THE BEAUTIES OF FORM AND COLOUR

and the impressiveness of light and shade. But if these lessons be neglected, we shall leave behind us but a poor account of ourselves in those Arts which strike the eye and impress the imagination. We have, too, unfortunately abandoned the symbolic, the emblematic, and the allegorical, so that we can tell no story to the eye by which the multitude may be impressed. It is foolishly believed that a paragraph in a newspaper or in an Act of Parliament will tell the same story and make the same impression on the multitude that can be made by a fine building adorned with storied and allegorical sculpture, and painting such as we see in the Arch of Titus or Severus. The Jubilee procession, poor as it was as compared with Mantegna's "*Triumph of Julius Cæsar*," told more of our power and extent of empire than all the history that has been written in this century. Recollect what an obtrusive art Architecture is, and how strongly it forces itself on the attention; how long it lasts, and how it forces people to come to see it in its own country. If you would only think that it is the history of the present power and cultivation of the people you would at least learn enough about Architecture to be able to judge of its excellence as you do about the other fine Arts you love, and be as proud of its excellence and as delighted with it, as you are with the pictures, statues, poetry, romances, and musical compositions of the day, and when you do take the same interest in it you will certainly have your reward.—Mr. Heathcote Statham, in proposing a vote of thanks to the President, was sure he would carry the House with him in saying that it was very seldom they had listened to an address from the Presidential chair which comprised so much weighty and important thought on the Art and profession of Architecture within so short limits. The address could be divided into two main objects, for the President had touched upon what the Institute could do and what, in a broader sense, could be expected and done by modern Architecture. The speaker considered the Institute examinations, the objects of which had been very forcibly laid down by the President, as having a preventive value. They did not want people in the Profession who did not really care for Architecture, and mean to do their best for the Art; the Institute was a sentinel to drive such away. And referring to what had been said, as the advice given to the student of Architecture to sketch in perspective everything that was beautiful, Mr. Statham thought that the practice as at present carried on was not without its danger, for it fostered a love of the details of ancient buildings, which in turn, led to a desire to reproduce those details elsewhere. He suggested that the measuring and drawing out of construction of old buildings was

A FAR MORE IMPORTANT TRAINING

to young architects than sketching their exterior appearance. Respecting the architectural education question, the President had

rather cast a slur upon the literary part of the examinations when he said it was very well to know a number of languages, but they did not constitute Architecture. No, they did not; but it was just as well an architect should not write to one that his building was designed "in the style of fourteenth century." He had received that twice from architects in large practice. Speaking as to what Architecture is, and how to improve it, the speaker did not quite agree with the President in all he had said as to statics. Was not the plan of a building, he asked, the central artistic idea? We had a fine example of that in what he had always considered to be our greatest modern building—the Houses of Parliament. It was an easy matter to say that the detail of the Houses of Parliament was only a repetition of Tudor detail. So it was; that was what was thought right at the time. But did not the real excellence of the building consist in that grand conception of the plan, and the grouping of the two towers and the central spire? The central idea was the plan, and that was really a form of Art just as much as the detail of the building. Then the President had always had a very strong opinion as to the importance of giving our minds to the treatment of new materials, especially iron. It seemed a very neat way of putting it to say that the Egyptians had a granite Architecture, the Greeks a marble Architecture, the mediæval architects a stone Architecture, and

WE HAD GOT IRON;

but, after all, did not all those ancient materials—granite, marble, stone—belong to the same family? They were all natural materials. They could not quite put iron on the same footing with them. It was, to some extent, an artificial material, artificially prepared; moreover, it had to be painted in order to preserve it from the weather. Then, again, was iron he asked, a monumental material? We did not know that yet. They could not be content with a monumental material that was only to last five centuries, the time given to one of the greatest iron structures in the country by its engineer; therefore he thought that the parallel between iron as a new material and the old stone materials was an argument which would not hold water, at any rate, it was open to serious question. The speaker also deprecated the comparison between great modern works, such as the Forth Bridge and the Cathedrals of the fourteenth century. These engineering works were certainly striking and grand in their way, but they were not built with the object of being beautiful, but rather to fulfil purely utilitarian purposes; the Cathedrals were

BUILT WITH THE OBJECT OF BEAUTY,

and there the essential difference laid. They must not forget that Architecture, although based on construction, had for its real object the production of beauty which would appeal to the imagination. Proceeding to deal with the possibility of producing anything great in the present day, he said he had no sympathy with men like the late William Morris—he did not speak in disrespect to his memory—who was frequently saying "Architecture is dead! Architecture is dead!" Why not try to make it live? If they looked upon Architecture as a symbolism of what they desired the building to express, instead of going to the past for symbols, they would be able to do something; perhaps it would not be so elaborate as the Renaissance or Classic or Gothic, but something which would fulfil the exhortation of the poet:—

"Oh, thou sculptor, painter, poet!
Take this lesson to thy heart—
That is best which lieth nearest;
Shape from that thy work of art."

—Dr. Alexander Murray seconded the vote of thanks, and said no one was better entitled to be heard on the subject of the education of architects than the President, from whose address he gave quotations, and asked how much was meant by the words "waste of material." The danger of wasting material, he said, was perhaps more imminent to architects than to any other profession, because of the great variety of taste or want of taste they had to consult. Referring to the

President's remarks of the obtrusiveness of Architecture, the speaker said it had always been true, and never more so than now, that great Art forced people to come and see it in its own country. A long expensive journey was considered small cost if the sight of the Parthenon was the reward. This tendency to admire the charms of other and older countries brought with it the aspiration to erect in our own works that which would keep alive the memory of the men of our own day. Proceeding, he did not suppose the President, who they all knew was greatly fascinated by Greek mouldings seen in the sunshine of Greece, would banish mouldings from the English shores because they lost so much from our atmosphere. Such a thing would be much regretted, because ineffective as Greek mouldings would be in our climate, they still displayed much of their unique beauty. Although we in this country could not have the startling effects seen in Greece, we might live in hope that some architect, inspired by what he had seen there, might find an equivalent.

RE-OPENING OF THE TIVOLI RESTAURANT.

THE Tivoli Restaurant, which has been closed for a lengthened period, was last week re-opened in signal splendour. Extensive alterations have been made, and the premises have been re-decorated throughout by Messrs. Waring and Sons, of Oxford Street, under the supervision of Mr. E. Runtz. An entire new suite of rooms, with lavatories, &c., have been added at the top of the building, which are intended for masonic meetings. These rooms possess the advantage of being isolated from the other parts of the building. A carved and panelled oak dado runs round the principal room. Upon this floor the filling is a dark blue paper, and the ceiling is panelled and painted with heraldic designs, and a very bold projecting carved overmantel is painted with masonic emblems. The staircase walls are decorated on the flat, with painted representations of Roman columns, &c.

THE FLEMISH BANQUETING HALL

upon the second floor is a very fine example of Flemish Renaissance style. The floor is of polished oak, both the walls and ceiling are panelled in oak and richly carved, as is also the bold projecting overmantel and the screen which partitions off the apartment about a third of its length from the fireplace end, and which is a good specimen of the same style, being formed of square pilasters, surmounted with columns, all of oak and richly carved. Tapestry adorns the walls, which are also relieved by dark red panels in the upper portion of the oak framing. Electric lamps of mediæval patterns, hanging from artistic wrought-iron scrolls, project at regular intervals round the walls, and several artistic wrought-iron electroliers hang from the ceiling. The oak furniture is in keeping with the other appointments, and the dark-red Turkey carpet adds just sufficient colour to relieve the brown oak, the whole producing an effect in which quietness of tone is combined with richness of ornamentation.

THE PALM ROOM

upon the first floor is of the same size as the Flemish Hall above, and will accommodate 130 persons, but the style of decoration adopted is quite different. The effect produced is equally as rich and subdued, and the entire absence of the usual garish and tawdry looking-glass style of restaurant decoration is conspicuous by its absence. The plaster palm-leaf decorations of the ceiling and cornice give the room its designation, the whiteness being relieved by gilding which, however, has been used as sparingly as possible. The floor is marble, as is also the dado, the panels in the latter being formed of coloured marble, the flatness of which is relieved at intervals with projecting alabaster trusses boldly carved, which form consoles. The walls above this dado are panelled out with fluted pilasters painted white and relieved with gold, the

panels between being filled in with velvet of a dark-green pattern. The doors are of solid oak-stained green, and fitted with large copper-bronze handles specially designed by the architect, of a most handsome and chased design. The furniture is of oak-stained green, and upholstered in the same colour, and dark-green silk curtains hang on each side of the windows, and upon each of the alabaster consoles previously mentioned a massive plant pot of brass Benares ware, containing large ferns, give a character to the room more resembling that to be expected in a gentleman's mansion than in a public restaurant. The system of lighting this room adds to this effect, the electric lights which depend from the centre of the fern-leaf decorations of the ceiling being surrounded with fancy shades of gold-coloured silk, through which the light shines with a soft, yellow radiance. Adjoining this room is the music-room, the sounds passing through a grille, while by the substitution of iron gratings for the skirting in the hall above, and an arrangement of adjustable flaps, the sounds of the music can be shut off or admitted into that room at the same time. A well-appointed kitchen is on the same floor.

THE BAR AND BUFFET

is situated upon the ground floor, and has several unique features. Here, as elsewhere, gaudy colours and tawdry effects have been discarded, the ceiling being painted in rich, soft blues and reds. The walls are panelled in oak, richly carved, and a carved oak screen divides the bar from the grill-room, the interstices between the oak uprights being filled in with dark red glazed bricks. The counter is unique; the front, in the form of a bold coving composed of glazed red bricks, formed into recesses by bold carved oak trusses, the whole surmounted by a St. Anne's marble top. The electroliers are of copper.

THE NEW FOYER AND CRUSH ROOMS

are decorated in Indian style, the colours of the faience work being exceedingly rich, and the electroliers of peculiar shape being of an essentially Indian character. The circular head of the exterior doorway is arranged in square panels, from the centre of each of which an electric light bulb projects, producing a brilliant effect at night. The doors of the main entrance are stained and polished a deep red colour, which, however, only tends to show up the lights and shades of the grain, which are the chief beauties of this favourite wood. Messrs. Waring must feel great satisfaction at the results they have been able to produce, and which are a distinct improvement, from an æsthetic point of view, from the methods of decoration usually adopted for public restaurants. F. W. D.

The sketch of an old and interesting inn at Wellingboro', which formed one of the illustrations of Mr. Herbert Norman's article on "Northamptonshire," appearing in our pages a fortnight ago, represented "The Golden Lion," and not "The Sun," as stated.

A TABLE of the names of the Archbishops of Canterbury, with a date of the enthronement of each, has lately been placed on the walls of Canterbury Cathedral. The list begins with "Augustine, 597," and ends with "Temple, 1897." It fills two panels and overlaps into a third.

The Society of Encouragement of Art has decided to erect in Stuttgart a bronze memorial tablet to Rubinstein, who resided for a long time in that town, and directed musical festivals there. Besides the inscription, the tablet has a relief figure of Rubinstein, modelled by the sculptor Bausch.

SOME idea of the cost of the Parliament Street, London, improvement may be gathered from the fact that for the premises at the south-west corner of the street, the lower portion of which is occupied by the Aërated Bread Company, a special jury has just fixed thirty-seven and a half years' purchase as the amount to be paid to the freeholders. As the house is let on lease at £700 per annum, this means a round sum of £26,250 for one house alone.

Professional Items.

BIRMINGHAM.—The extension of Bourne College, Quinton, is now completed. Messrs. H. Dorse and Co., Cradley Heath, Staffordshire, have carried out the work at a cost of about £5000, under the supervision of Mr. A. Freeman Smith.

BELFAST.—Several new wards and an operating room, recently added to the Ulster Eye, Ear, and Throat Hospital, were opened a few days ago. The extension comprises new bath-rooms and water-closets, which are fitted up after the most approved modern system. The floors are tiled and the walls cemented. New day rooms are provided for the male and female patients, and eight new private wards are added. A special feature is the operating room, which is constructed at the top of the hospital, so as to secure good light, quietness, and absolute cleanliness. This room has a northern aspect, and is lighted by a large window at the side and a roof window of plate glass. The contract was carried out by the late Mr. Isaac Hewitt, builder, under the superintendence of Mr. Henry Scaver, architect, Royal Avenue.

BURY.—The Art Gallery Committee of the Bury Corporation has considered the designs for the erection of a suitable building in which to place the Wrigley collection of pictures. It was decided to recommend the adoption of No. 1 premiated design bearing the motto "Mezzotint," and to appoint Messrs. Woodhouse and Willoughby, Manchester, as architects.

ELLESMERE.—An imposing hall, which is a worthy addition to the existing block of college buildings, has been erected, and the group now form probably the finest schools in the county from an architectural standpoint. The new schoolroom has been built from the designs of the architects of the college, Messrs. Carpenter and Ingelow, on a scale proportionate to the rest of the college. It is a fine room 130ft. long and 36ft. wide, and the height inside is 45ft. to the apex of the roof. The hammer-beam roof is of firwood, with open tracery work, and at some future date there is to be 12ft. of fir panelling round the walls, and ten class-rooms, which are designed to abut on the sides of the central room, will be added. The room is lighted by high windows along both sides, and by a fine one of five lights at the south end. It is built of brick with stone dressings, and is paved with wood blocks. The total cost of the structure has been £5202.

EXETER.—General Sir Redvers Buller, V.C., recently laid the foundation-stone of the new Church of Emmanuel at St. Thomas, Exeter. The new church, which will accommodate 600 worshippers, will consist of a chancel, with organ chamber on the north side, side chapel and vestries for clergy and choir on the south, nave, with north and south aisles and transepts, and south-west tower. The style selected is an adaptation of the English Gothic of the beginning of the fifteenth century. The walls externally are to be built between the dressings, in Babbacombe stone, internally in Pocombe. The dressings, window tracery, &c., are to be in Bath stone. The roofs are open-timber ones, constructed in pitch-pine, and the floors throughout are to be laid with wood blocks. The windows, generally, are to be glazed with rough cathedral glass of a light shade. The heating is to be by hot water, and on account of the dampness of the site the chamber is arranged in an iron tank under the north transept. The ventilation is to be effected through inlets in the sides of the windows, and an exhaust ventilator in the turret over the nave roof. The extension of the transept northward, with additional entrance porch and other slight alterations, have taken place since the first designs were made.

HERNE BAY.—The trustees of the Friendly Societies' Convalescent Home have appointed Mr. A. Saxon Snell, F.R.I.B.A., architect for the erection of a home at Herne Bay for fifty patients. The entire cost of the building will be defrayed by Mr. J. Passmore Edwards, who laid the foundation stone on Saturday.

HEYSHAM.—Heysham harbour is just over a mile distant from Heysham village. The first breakwater commences with a cutting over the brow of the hill from the lane, and stretches out to sea a distance of a mile. This embankment will be 500ft. wide at the root, will taper off to 150ft., and will be made principally of stone and rock. The companion breakwater, commencing at Red Nab, will be a mile and a half long. The harbour proper will cover forty acres, and will be 17ft. deep at low water, whilst the pier running out into the centre of the harbour will be 2000ft. long. Upwards of 1½ million cubic yards of sand, etc., will have to be scooped out of the harbour, and two million cubic yards of the shore side removed, all of which will be used in the construction of the mammoth breakwaters. The contract for the harbour has been let at £480,000 to Messrs. Price and Wills, of Westminster, and the work will be carried out under the superintendence of their agent, Mr. Furness.

HUDDERSFIELD.—An exhibition of the work of students in the Art classes of the Technical College has just concluded at Huddersfield. More attention was given during last session than usual to original design, and to its practical application to industries. The result is that there is a greater number of designs shown than usual. These designs are for friezes, panels, caskets, silver plates, cotton prints, spandrels, damasks, wall decorations in stencil, wall paper, &c. Prominent amongst these is a model design for a Gesso ceiling by Mr. J. H. Milner, assistant Art master, with an enlarged sectional drawing. A floral design for a fire screen panel has been carried out with beautiful effect in appliqué embroidery. There is also a specimen of the application of design to brass, the design being eaten out with acid. A feature of last session's work was the comparatively large number of painters' and decorators' apprentices who took part in it, and their specimens display much taste.

LEEDS.—The Building Clauses Committee of the Leeds Corporation is engaged in revising the building regulations for the city. A draft, numbering 117 bye-laws, has been prepared, and copies sent to the Leeds Master Builders' Association and the Leeds and Yorkshire Architectural Society, in order that those bodies may review the list, and make what suggestions they think proper. Many of the old bye-laws have been retained, a considerable number have been materially modified, and there are some new regulations. With regard to the laying out of new streets, hitherto the minimum width has been 36ft. Now it is proposed that main thoroughfares shall not be less than 42ft. There is a proviso, however, that a street may be 36ft., on condition that at each side there is an area of 6ft., making 48ft. from house front to house front. A new bye-law stipulates that in the case of dwelling-houses to be erected in damp situations there shall be a layer of concrete 6in. thick, or a covering of asphalt. Another provision of a like character is to the effect that in every new building a damp course shall be inserted at a height of not less than 3in. above the surface of the ground. In order to restrict the use of old bricks in the erection of new dwellings it is provided that no such material shall form part of an external wall or of an internal half-brick wall, but that good old whole bricks shall be allowed in an internal 9in. wall on condition that "not more than two thirds of the same are mixed with one-third of new bricks." Special regulations are introduced with reference to the quality of other materials. For example, mortar must consist of good lime and sand in the proportion of one-third lime and two-thirds sand. There are likewise provisions as to the

strength of timbers supporting roofs, floor joists, beams and girders, both in the case of dwelling-houses and business premises. The necessity of providing ventilation, not only in dwellings, but also in places of entertainment and places of worship, has received attention, and further effort has been made to secure efficient sewerage and to provide for the ventilation of drains. The Architectural Society, whilst cordially approving of many of the provisions, have suggested the alteration of a number. Surprise is expressed by some who have perused the draft that no alterations are proposed with regard to the thickness of party walls in business premises. At present such walls have to be of the same thickness as the external walls, and it is suggested that they should not be more than two thirds as thick. This and other points, however, will no doubt be carefully considered.

We learn that Mr. Francis W. Bedford, of 12, East Parade, Leeds, and also of 8, Princes Street, Westminster, S.W., has taken into partnership Mr. Sidney D. Kitson, M.A., and that henceforth the business will be carried on at the above addresses, under the style of "Bedford and Kitson."

MORECAMBE.—The extensions of the Morecambe Pier has now been commenced. The work is being carried out by Messrs. Magnall and Littlewood, of Manchester, their designs being selected in competition. The Widnes Foundry Co. are the contractors for the Pier, and Messrs. Peters, of Rochdale, are the contractors for the Pavilion. The new Pier comprises a new approach, the widening of the Pier, the providing of additional shelters, and the erection of a large pavilion. The semi-circular forebay, leading up to the entrance, will be 97ft. by 176ft. wide, and the entrance gateway will be a very attractive feature as seen from the Promenade, being a very fine combination of turrets, towers, and a large, semi-circular archway. This archway embraces the ticket offices, turnstiles, and other minor ornamental gates leading on to the Pier. The new Pier Promenade leading to the Pavilion will be 40ft. wide between the entrance gates and the Pavilion platform, to meet the increasing demand for promenading space, and at regular intervals will be placed kiosks or shelters. Without interfering with the present pier head, a platform 250ft. long and 150ft. wide will be constructed to form the substructure for the Pavilion. The Pavilion will form an attractive feature from the shore, having a large dome and campanile towers. At the back of the Pavilion is an ornamental verandah and shelter for use in inclement weather.

NETHERTON DUDLEY.—The tender, £700, of Messrs. H. Dorse and Co., Cradley Heath, Staffordshire, has been accepted for the erection of offices for Messrs. S. Lewis and Co., at Netherton Dudley. Mr. A. Ramsell, of Dudley, is the architect.

OLD HILL, STAFFORDSHIRE.—For many years past the urgent need for more adequate and healthful accommodation for the Tabernacle Sunday Schools has been recognised by the trustees and officials. Mr. A. Ramsell, architect, Dudley, has prepared plans for a new building, and the tender of Messrs. H. Dorse and Co., Cradley Heath, has been accepted at the cost of £1850.

OLDBURY.—The Parish Church of Oldbury-upon-Severn has been destroyed by fire. The sacred edifice, situated on an eminence a short distance from the Severn, occupied the site of a Roman camp, and was a stone building of the Early English style, supposed to have been built in the eleventh century. There was originally a spire, which was blown down in 1702. In 1885 and 1886 the church was restored, and the south aisle and porch rebuilt. With the exception of the two porches the building is an entire wreck. The huge bell was entirely melted, and the freestone on the handsome arches is broken and cracked. The huge and very ancient font, which was of one solid stone, is also destroyed.

SOUTHPORT.—The fittings of St. Luke's Church, which must be classed among the most ornate in any parish church in England, are now practically complete so far as they in themselves go, though much painted decoration has still to be done. They embrace massive elbowed stalls returned on the collegiate plan, all fashioned in well-seasoned English oak, and on the north side a sculptured pulpit of the same material, resting upon a base of polished alabaster; a splendid high altar, 10ft. 6in. long; and a superb tryptich and reredos (like all the rest, in carved oak), over 27ft. high. The great tryptich at the Church of the Holy Virgin, in Primrose Hill, London, N.W., designed by Mr. John L. Pearson, R.A., has long been named among the largest and finest conception of the sort in England; but there can be no doubt that Mr. Huon R. Matear, of Liverpool, the architect for St. Luke's and its accessions, has equalled, if not eclipsed, his better-known brother in Art in the creation of this splendid altar-piece. All the fittings, like the fabric itself, are of freely treated fifteenth century Gothic style of Architecture. The altar front is chastely traced, and is aptly enriched by emblems of the Passion and by conventionalised passion flower ornamentation. A special feature immediately above the super altars (of which there are two) is the introduction of ornamental panels, which are movable from the eastern side, so that flowers, candlesticks, and other ornaments may be placed thereupon. The whole is canopied out, and above again is the tryptich proper. The doves or wings are gracefully traceried, and have angels sculptured in the round kneeling upon them, apparently in the act of blowing trumpets. Still higher is more groined and tabernacle work, the whole terminating with a cross. Large statuettes of saints carved in the round and in solid oak adorn the niches. The pulpit stands just outside the dwarfed chancel wall, and is sixteen-sided on plan. At seven of the angles are wide and projecting octagonal canopied niches for sculptured figures, whilst the flanks between are carved and traceried. The upper part is ornamented by a wide band of rich carving. At intervals are shields bearing religious monograms. In the stalls provision is made for the ample accommodation of the officiating clergy, forty singing men and twenty-four boys. They have traceried fronts, backs, and standards, and the linen panel ornamentation is introduced in some of the seat backs. The elbows of the seats are all carved. At the entrance to the chancel, on the pillars at the end of the return stalls, are sculptured statues of angels in adoration. The whole of these splendid additions to St. Luke's Church have been carried out and placed *in situ* by Messrs. Hems and Sons, of Exeter. The entire cost is calculated at between £1000 and £2000.

STOCKPORT.—Since March last an important work has been in progress at the Portwood Gas Works, Stockport, a staff of men from the establishment of Messrs. Ashmore, Benson, Pease and Co., Stockton-on-Tees, having been engaged in making alterations and improvements in the gas holders. The work has been more or less of an experiment, a new principle being applied to one of the existing gas-holders. The new system, which is the invention of a member of the firm whose name we have given above, enables the gas-holder to be projected high above the columns, thus greatly increasing the storage capacity. It was decided that only one gas-holder should be dealt with at first, and one of the largest was selected for the purpose, a holder with a diameter of 150ft., with a tank of 32ft. deep, and a capacity of about a million cubic feet. The columns supporting this holder are 62ft. high, and, of course, that was also the height of the original holder. But by the new system two additional lifts have been built on the top of the old holder, and these are entirely unsupported by columns, and when lifted to its utmost capacity it will be raised to a total height of 120ft., or nearly 60ft. above the height of the columns. These two lifts give an additional capacity of nearly a million cubic feet, and are worked by means of steel wire ropes of ¾ in. diameter.

To obviate any strain upon the columns, an intermediate girder has been run round, and the pillars also braced with ties. Among the minor details, we may say that in the older style of gas-holders there is an inner framing attached to the crown, but, in connection with the one we are describing, this has been detached and fixed permanently to the bottom of the tank. Another new, and we may say excellent feature, is seen on the corner of the new erection. Round the edge a plate projects upwards to the extent of 4in., and thus is designed to protect the workman who may, for various reasons, be working on the top.

WOODVILLE.—The Church of St. Stephen, Woodville, has not been structurally or materially altered since its consecration fifty years ago until a few months ago, when, owing to serious defects in the building and foundations, it was found necessary to adopt a scheme for effecting practically its complete restoration, in order to prevent the threatened collapse of the chancel arch and the falling outward of the walls. The work was commenced in March by Messrs. T. Lowe and Sons, Burton-on-Trent, the preparation of the plans being entrusted to Messrs. Draper and Walters, of Leicester. The alterations embody the rebuilding of the north and south aisles, along the greater portion of the nave, and the lengthening of the chancel to the extent of 10ft. The chancel arch has been considerably widened and improved in other details, an organ chamber provided, an additional vestry introduced, and an east door put in. The building is in the "Modern Norman" style, and of a substantial nature. The aisles are separated from the nave by a stone arcade in three pieces, or circular columns with carved caps and arches, and the paving here, as well as in the chancel, is done with yellow pine wood blocks, the sacarium being treated with vitreous mosaic. A variety of stone has been used in the work, comprising Derbyshire and Hollington, and Coxbench, that of the outer walls being in sympathy with the original parts existing. The total amount of the contract is entered at £1,306.

THE WINTER SESSION.

THE INSTITUTION OF CIVIL ENGINEERS.

AT the first ordinary meeting of the 79th session, held on Tuesday, November 2nd, the President, Sir John Wolfe Barry, K.C.B., delivered a short address to the members, dealing with various matters concerning the present and future welfare of the Institution. He referred to the increasing duties devolving upon the Council in proportion to the growth and importance of the Institution, now numbering on its roll 7075 persons. He proceeded to refer to the Engineering Conference, held by the Institution in May, the estimated attendance at which was 850. Reviewing the subject of the examinations recently instituted, the President pointed out how they were intended to show that candidates for election into the class of Associate Members were acquainted with those general principles which had always been and must be recognised as the basis of the engineering profession, and also to make clear that each candidate possessed a somewhat fuller scientific knowledge of the elements of the particular branch in which his special training had laid. Although an advocate of examinations for the purpose of ensuring the possession among those who entered the Institution of proper qualification in respect of theoretical knowledge, the President desired to avoid being understood to claim for such knowledge one whit more than its real worth in the equipment of an Engineer. Practical knowledge was no less necessary now than formerly, and in the Engineer's office, in the workshop and on the works of construction, and there only, could a young engineer learn by experience to modify and correct theoretical conclusions by practical considerations.

ARCHITECTURAL ASSOCIATION LYRIC CLUB.

This season's opening concert of the Architectural Association Lyric Club (President, Mr. John Murray) was held a short time ago, at the Swallow Assembly Rooms, Piccadilly, when the President of the Architectural Association, Mr. Hampden W. Pratt, took the chair. There was an exceptionally large attendance of over 200 members and friends, among whom were several prominent members of the Architectural Association. During the evening a presidential hammer was handed by Mr. Hampden W. Pratt, on behalf of the club, to Mr. John Murray, and several nominations were read. An excellent programme was carried out, and the pleasant evening bids fair to inaugurate the most successful season that the club has yet attained. Among the artistes were: Miss Jessie Hotine, Messrs. Theo. Disdin, Roland Henry, S. Constanduros, Gurney Russell, J. Berridge Fraser, Stanley Graham, W. Coward, F. H. Willis, and Mark Ambient. Mr. C. D. Imhof, who has been accompanist for the club since its foundation, again presided at the piano.

DESIGN IN CONSTRUCTION.

The usual monthly meeting of the Glasgow Architectural Association was held in the Rooms, 187, Pitt Street, on Tuesday, 2nd inst., when Mr. James Salmon, delivered a paper entitled "Design in Construction." The lecturer divided his paper into two parts, the æsthetical and the practical; in the former, he satirised, in a racy fashion, the common practice of present-day architectural design, where features of old work were selected and strung together, either inflated or shrunk down as the case required. The same principle was acted upon in construction, the stock forms of the text books being reproduced without any consideration of their applicability, or attempt at fulfilling the same requirements by independent thought. This state of things Mr. Salmon blamed on the recognised system of stuffing students with dull rule-of-thumb details, instead of endeavouring to direct their minds to grasp the general principles and think independently. This was demonstrated by showing, in drawings and on the blackboard, modes other than those generally in use for carrying out a few of the commonest pieces of construction.

THE ARCHITECTURAL ASSOCIATION.

The President announced, at a meeting of the Architectural Association on Friday night, that the annual soiree will take place at the Matinee Theatre, on Friday, the 26th inst. After the reception, a musical play, specially written by Mr. F. D. Clapham, and entitled, "The Broken Contract, or An Egyptian Enigma," will be produced. The following were received into the membership of the Association:—Messrs. F. G. May, E. O. Payne, W. S. Payne, J. H. Pearson, C. E. Pease, C. M. Quilter, E. R. Taylor, E. P. Archer, A. C. Stair, C. C. Duggan, R. C. Fry, J. Haslam, C. F. Innocent, and E. H. Kent.

"EVOLUTION OF THE HOUSE."

The thirteenth meeting of the session was held on Wednesday, the 3rd inst., Mr. J. A. Williamson, president, in the chair. Mr. A. N. Paterson, M.A., Glasgow, delivered a lecture entitled "Evolution of the House," which was largely illustrated by diagrams. Mr. Paterson first treated of the earliest developments of domestic dwellings, and then described, in historical order, the houses of the Greeks and Romans, the Saxon hall and Norman castle, the grange and the monastery, the early town house, and the mansions of Elizabethan and Jacobean times. He traced the special Scottish developments from the fifteenth to seventeenth centuries, and gave a short description of the Palladian type of house and the house of the times of Queen Anne and the Georges.

ST. MICHAEL'S CHURCH, in Gresham Street, has been turned into a bank.

Correspondence.

TO CORRESPONDENTS.—Some weeks ago we were asked by several correspondents for additional information respecting a short work entitled "The Art of Tracing," by E. W. Fritchley, of Bombay, a review of which had appeared in our columns. At the time we were unable to answer the enquiries; we are now able to state, however, that a further supply of the book has been forwarded to England, and is obtainable from Messrs. William Watson and Co., 7, Waterloo Place, Pall Mall, at the price of 1s. 6d.

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

BUILDERS' BOOK-KEEPING.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you recommend or know of a treatise or work dealing with "Builders' book-keeping," a thoroughly concise, brief and practical system of prime cost, contract, and jobbing accounts.—Yours faithfully, H. J. F.

So far as we can ascertain, there is no good work on builders' book-keeping, though we understand that a series of articles on the subject appeared not long since in one of our contemporaries. We are inclined to recommend a study of Hunter's Book-keeping, in which the principles of ordinary commercial book-keeping are very clearly explained in such a way that it would be quite possible to adopt them to any special requirements.

LEVELLING.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—What is the simplest plan for putting up a permanent and trustworthy bench mark on boggy soil where there is no building that can be guaranteed as stable within a mile or more?—Yours faithfully, UNSETTLED.

We are afraid that it will be very difficult to suggest a means for setting up a really satisfactory bench mark in the situation described. The somewhat expensive plan of driving a pile right down to the solid seems the only satisfactory solution, and this may not be practicable. It appears to be a case for the exercise of personal ingenuity, exercised by someone having a perfect knowledge of local circumstances.

QUANTITIES.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you be so good as to inform me, through the medium of your Enquiry Department, the title, publisher, and price of a really good manual on the taking off of quantities? What I want is a book showing full details of where to measure to and from, what to include and exclude, to add or allow, and deduct. I have "Beaton's Quantities and Measurements," but this work does not show the trade details I desire as enumerated above.—Yours truly,

ENQUIRER.

Oct. 23rd, 1897.

There are two excellent works upon quantity surveying: one by Mr. J. Seaning, published by Spon, and the other by Professor B. Fletcher, published by Batsford, the price of either being about 9s. Mr. C. H. Searle, of 16, Southwark Street, S.E., is also bringing out a more exhaustive work in parts; and an

early issue of "Specification," the new publication from these offices, will contain a series of notes on quantity-taking in all trades.

RIDGE TILES.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I should feel obliged if you or some of your correspondents could inform me whether or not there is such a thing as an "unstrippable" ridge tile in the market. I mean a ridge tile that cannot be blown off by the wind. If there is I should be glad of particulars.—Yours truly, EXEBRIDGE.

November 1st, 1897.

Any ridge tile made to fit the pitch of the roof, and properly bedded in cement, is practically "unstrippable" by the wind. Failures are due to inferior workmanship. Careless builders often use stock tiles that are of flatter pitch than the roof, with the result that the wind gets under the open edges and upsets the tile; the remedy is obvious.

THE PROPORTION OF CHURCHES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can any readers of THE BUILDERS' JOURNAL inform me the rule, if any, how churches are proportioned? For example, what proportion does width bear to length, width or length to height, also what proportion when aisles are used? Perhaps there are some works on same, if so will you please let me know where I may get a copy.—Yours, etc.,

Castlerock,

Co. Londonderry, Ireland.

October 29th, 1897.

We are not aware that there are any absolute and fixed proportions for churches, any more than for other buildings. Architecture is not a matter of formula. You will find in "Lectures on Architecture," by Viollet-le-Duc, particularly in Lecture IX., all there is to be said on the subject. Notice that the title of the lecture is "On principles and branches of knowledge with which architects should be acquainted." With regard more particularly to churches, you will see the geometrical methods which he suggests the architects of the middle age employed in their cathedrals. It is, of course, open to you to consider these proportions—which doubtless exist—as coincidences; or, on the other hand, considering what a passion for geometry possessed these architects, you may think that they would consider it an added perfection if the main proportions of their buildings exactly fitted some geometric figure, such as the superior-posed triangles which give the light of the nave at Amiens. But if this is so, there is no obligation on us to follow this method; it is only a method, good or bad, not a principle. Such methods should certainly be known, but they must always be used with discretion and judgment; no amount of such knowledge can ever compensate for lack of taste and artistic insight.

We are informed that Messrs. J. B. Guthrie and Son, of 96 and 98, Leadenhall Street, have been appointed the London agents of Messrs. Smith and Co., of Station Street, Nottingham.

The election of the President of the Royal Society of Painters in Water Colours takes place on the 30th inst. There appears at present to be no consensus of opinion as to a candidate amongst the full members who constitute the electorate.

Notice to London and Provincial Readers.

The Editor of the "Builders' Journal" will at all times be pleased to receive and consider articles of a professional or technical character suitable for these pages. Papers read before Architectural bodies will also, if forwarded, receive careful consideration.

Trade and Craft.

ELECTRIC LIGHTING.

Mr. T. W. E. Higgins, surveyor to the Chelsea Vestry, has prepared an elaborate report, giving a digest of information obtained from various districts as to electric light installations. The report may almost be treated as a practical treatise on the working, financially and otherwise, of electric lighting. Mr. Higgins points out that the first object of any system is to lead the current from the diagonal terminals to the consumers lamps with the greatest efficiency and the smallest capital expenditure. In a high-pressure system it is always necessary to fix a transformer, either in the consumer's house or in a sub-station, to reduce the voltage from high to low pressure. An objection to the system is the dangerous nature of the currents employed. A high-pressure system is always most suitable when the electrical energy has to be carried for a long distance. With a low-pressure system the loss at high loads is great, but at low loads is small. The system is quite safe and most suitable when the district to be served is a small one. The most suitable low-pressure system would be the "Three-wire" system, by means of which a great saving in copper is effected, as compared to the simple parallel system, and efficient regulation of the pressure by means of feeders is possible in a district of the size of Kensal Town, without the use of transformers or motor generators. The very lowest cost of such an installation would be:—Site, £3500; buildings, £6000; boilers, machinery, and electrical apparatus, £10,000; mains and feeders laid complete, £12,000; provisional order, fees, instruments, and incidental expenses, £4500. The annual cost of working such a station, when it is in thorough working order, with a fair load, should not exceed 4.5 pence per unit sold, that is, of course making no allowance for repayment of capital.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BELFAST—For alterations and extensions to licensed premises, corner of Henry Street, and Nelson Street, for Mr. C. Cassidy. Mr. John V. Brennan, architect, 31, High Street, Belfast:—

M. Mooney and Sons ... £203 D. J. Green, 3, Spencer Street (accepted) ... 145

Wm. G. Callen ... 170

BEVERLY (Kent)—For additions and repairs to farm house, at Belvidere, Kent. Mr. St. Pierre Harris, architect and surveyor:—

G. H. Cuning ... £406

BURWICK-ON-TWEED—Accepted for Spittal Sewerage Works, for the Sanitary Authority. Mr. R. Dickenson, Borough surveyor, U.S.A. Buildings, Burwick:—

Macraay and Son, Broughty Ferry ... £1,245 1 1

BRIDLINGTON (Kent)—For the erection of a villa residence, for Mr. W. M. Hopper, of Hull. Mr. J. M. Dossor, architect, 2, Manor-street, Hull:—

John Kennard ... £1,177 18 9 F. Blackburn and Thos. Goates ... 973 0 0 Son, Hull and F. Hall ... 566 0 0 Bridlington ... £946 0 0

* Exclusive of mason. † Accepted.

BUCKFASTLEIGH (Devon)—For alterations and additions to farm buildings at Torr Dean, for Mr. John Fleming, J.P., Bigadon, Buckfastleigh. Mr. W. M. Tolitt, architect, Totnes:—

Jackson and Son ... £125 0 T. Luckraft ... £119 8

Arscott and Pether ... 122 0

[All of Buckfastleigh.]

CARDIFF—For alterations and additions to the "Spotlands" Inn, Cardiff, for Messrs. W. Hancock and Co., The Brewery, Cardiff:—

Evans Bros. and Co. ... £800 0 John Mathias ... £558 10

Williams and Thomas ... 625 0 Beames and Nephews, S. Shepton and Son ... 560 5 Cardiff ... 547 5

* Accepted.

CHELSEFIELD (Kent)—Accepted for the erection of a small detached house at Chelsfield, Kent, for Mr. Blackwell. Mr. St. Pierre Harris, architect, &c., 8, Ironmonger-lane, E.C., and Orpington:—

J. Smith ... £230

DAGENHAM (Essex)—For the erection of pavilion at small-pox hospital, for the West Ham Town Council. Mr. Lewis Angell, C.E., Town Hall, Stratford, E.:—

G. Sharpe ... £4,960 0 W. Gregr and Son, A. H. Carter ... 4,848 13 Stratford ... £4,693 0

* Accepted.

DEVONPORT—For alterations to business premises, 32, Macborough-street, for Messrs. J. Moore and Sons. Mr. H. G. Luff, architect, 64, Chapel-street, Devonport:—

W. J. Oliver ... £983 12 6 F. Blowey, Ply. J. Healy and Son ... 975 0 0 mouth ... £895 0 0

J. Jenkin and Son ... 973 14 6 * Accepted.

DEVONPORT—For alterations to business premises, 32, Marlborough-street, for Messrs. J. Moore and Sons. Mr. H. G. Luff, architect, 64, Chapel-street, Devonport. Quantities by Mr. Edgar W. Leest, Laboratory House, Devonport:—

W. J. Oliver ... £983 12 6 P. Blowey, Plymouth ... £895 0

J. Healy and Son ... 975 0 0 * Accepted.

T. Jenkin and Son ... 973 14 6

KNOTTINGLEY—For alterations and additions to property in the Croft, for Mrs. W. T. Crawshaw, 2, West Park-terrace, Scarborough. Mr. W. Wrigley, architect, 6, West-gate, Wakefield. Quantities by architect:—

Building—John H. Austerberry, Ferry-bridge ... £80 0 0

Slatting and Painting—A. Sutcliffe, Castleford ... 22 8 5

Plastering—G. Lockwood, Wakefield ... 8 6 0

Carpentry and Joinery—F. H. Curry and Co., Pontefract ... 52 3 0

Plumbing—E. Tate, Knottingley ... 14 10 0

£177 7 11

LANCHESTER—Accepted for laying 557 yds. of 9in. pipe sewers, with manholes, &c., at Holmside Village, for the Rural District Council. Mr. J. E. Parker, engineer, Post Office-chambers, Newcastle-on-Tyne:—

G. H. Bell, Bishop Auckland ... £158 12 6

LEEDS—Two houses, Burley Village. Fred Mitchell, architect, 71, Albion-street, Leeds:—

Brick and Mason Work—C. Lucas and Sons £280 0

Joiner's Work—William Wray ... 100 0

Plastering—J. W. Watson ... 26 10

Painter—J. Stead ... 44 15

Slatting—T. E. Heavside ... 14 0

Painter—J. Robinson ... 16 0

[All of Leeds.]

LIMAVADY (Ireland)—For the erection of a residence and offices at Main-street, for Mr. J. E. Proctor, Limavady. Messrs. W. and M. Given, architects, Diamond, Coleraine. No quantities:—

Maxwell and Co. ... £208 10 0 Thorpe and Mc-James Wray ... 812 3 0 Cracken, Lima-

John Holmes ... 783 12 4 vady, Co. Londonderry ... £759 4 6

* Accepted.

LONDON—For the execution of sanitary work at the Holborn Fire Station, for the London County Council:—

Vigor and Co. ... £215 10 0 F. and F. J. Wood ... 117 0

G. Munday and Sons ... 183 0

* Accepted.

LONDON—For alterations and remodelling bars at the "Blind Beggar" public-house, 173, Whitechapel-road, E., for Mr. Charles Martin. Mr. Ernest H. Abbott, architect, 6, Warwick-court, High Holborn, W.C. Quantities by Mr. Alfred Johnson, 30, Imperial-buildings, Ludgate Circus, E.C.:—

Dabbs ... £2,285 Hall, Beddall, and Co. ... £2,150

Fordham ... 2,271 A. E. Symes ... 1,998

Harper ... 2,267 T. Russell ... 1,973

Samuel Salt ... 2,249 T. W. Smith and Son ... 1,933

W. Antill and Co. ... 2,200

LONDON—Accepted for repairs at Nutfield House, Balham. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C.:—

Somerford and Son ... £134

* No competition.

LONDON—For a detached house and stable, Pelham-road, Gravesend, for Mr. Joseph Gray. Mr. E. J. Bennett, architect:—

Fily ... £290 Martin ... £269

Tuffee ... 839 Multon and Wallis ... 798

Rayfield ... 839

* Accepted.

LONDON—For the erection of stables, mortuary, etc., in Overy-street, Dartford, for the Urban District Council of Dartford. Mr. Wm. Harston, Town Surveyor, Dartford:—

Knigh ... £2,379 Lonsdale ... £2,779

Martin ... 2,379 Multon and Wallis ... 2,513

Galer ... 2,783

* Accepted.

LONDON—For alterations and additions to the "Rose and Crown Tavern" and 171, Windmill-street, Gravesend, for Mr. H. Doughty. Messrs. Eeale and Meyers, architects. Quantities by Mr. H. Dow White:—

Gregory and Co. ... £2,275 J. M. Dering ... £3,463

Medeson ... 2,463 W. H. Archer ... 3,328

Atherton ... 3,890 W. Tuffee ... 3,270

Walsh and Son ... 3,855 Multon and Wallis ... 3,247

S. J. Jarrard and Son ... 3,528

* Accepted.

LONDON—For alterations and additions to No. 5, Whitehall-gardens. Mr. R. Curwen, architect, 149, Bishopsgate-street Without, E.C.:—

Leslie and Co., Ltd. ... £2,865 Blyth and Co. ... £2,407

W. Pattinson and Sons ... 2,750 Belham and Co. ... 2,448

D. Gibb and Co. ... 2,700 Chessum and Son ... 2,353

Ernest Wheeler ... 2,682 Hampton & Sons, Ltd. ... 2,280

Ham and Sons ... 2,670 Kiddle and Son ... 2,249

F. T. Chinchin ... 2,600 E. A. Rooome ... 2,150

H. Faulkner and Co. ... 2,556 Lilly and Lilly, Ltd. ... 2,051

Elkington and Co. ... 2,520 Spiers and Son ... 1,960

* Accepted. £2,100.

[All of London.]

Separate Contract.

For decoration of four principal rooms and hall:—

G. Jackson & Son, 49, Rathbone-place, W. ... £1,468 9

* Accepted.

LONDON—For alterations and new saloon bar at "The Falkland" public-house, 66, Falkland-road, Kentish Town, N.W., for Mr. A. L. Garrod. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.:—

King and Son ... £280 Blomfield and Evans, Rhodes ... 635 Junction-road, N. ... £587

Peterson ... 635 Green ... 585

* Accepted.

[Architect's estimate, £600.]

MANCHESTER—For the erection of new premises, Mulberry-street, Hulme, for the Grange Park Dairy Company. Mr. E. W. Leeson, architect, 49, Princess-street, Manchester. Quantities by the architect:—

Quarby and Co. ... £1,406 John Bland ... £1,400 0 0

James Byrom ... 1,456 0 0 Megarity and Co. ... 1,370 0 0

A. R. Bullivant ... 1,418 0 0 R. Whittle ... 1,348 0 0

and Co. ... 1,418 0 0 R. Carlyle, jun. ... 1,297 18 6

Young, Tinker, and Young ... 1,407 0 0 Ardwick ... 1,286 0 0

* Accepted.

MIDDLEBROUGH—For the erection of a children's hospital and porter's lodge at the Broomlands, Linthorpe, for the Middlebrough Board of Guardians. Messrs. R. Lofthouse and Sons, architects, 62, Albert-road, Middlebrough. Quantities by Mr. H. T. Neilson, Darlington:—

M. Johnson ... £4,717 0 0 D. Doughty ... £4,260 0 0

Allison Bros. ... 4,500 0 0 W. Prest ... 4,170 0 0

T. Pearson ... 4,315 11 7 Bray Bros. ... 4,141 0 0

Hudson Bros. ... 4,300 0 0 S. Coates ... 4,029 2 5

Bastiman Bros. ... 4,278 13 6 W. C. King ... 4,027 14 3

[All of Middlebrough.]

* Accepted.

RENEWICK (Cumberland)—For the erection of an oblique bridge across the Raven at Sickerkill, Renewick, for the Penrith Rural District Council:—

W. Dixon ... £815 18 0 Lightburn and T. Telfer ... 789 15 6 Sons ... £628 0 0

A. W. ... 772 9 10 Isaac Gill, Am-

W. J. Sewell ... 771 ... stable ... 593 2 9

* Accepted.

RYTON—For sewerage works at Crookhill for the Urban District Council. Mr. J. P. Dalton, engineer to the Council, Ryton-on-Tyne. Quantities by the engineer:—

G. T. Manners ... £144 6 0 A. Trench ... £115 2 10

J. Robson ... 132 14 3 J. Nevill ... 110 0 0

J. Thompson ... 128 14 0 W. Cumming ... 106 0 4

B. Baile ... 122 11 0 W. Craig, Gates-

M. D. Young ... 119 17 7 head ... 105 14 10

W. Sprout ... 119 17 7

* Accepted.



An Architectural Causerie.

Planning at Home and Abroad.

It is always an interesting and instructive pursuit to review the progress and development of Continental work compared with our own; to see how in some directions the intellect of the Latin races has reached a level that we are but struggling to attain, and how in others we are utilising knowledge and faculties that seem yet in a dormant state in our neighbours. If we pause awhile for the purpose of making careful comparison and finding where the differences lie, we shall reap our reward in coming back to our work refreshed by a clearer view of our deficiencies, tempered with a gratifying perception of our superiority in some other directions. For instance, while it would be hard to persuade ourselves that the Architecture of our public buildings approaches in artistic interest that of the best of a similar class on the Continent, when we come to look at them from the practical side we find that as regards the science of planning the latter are at least several decades behind. Not that Continental planning is not admirably adapted to produce interesting architectural effects; these, of course, are well looked after; but that the purely utilitarian side is treated in quite a primitive fashion compared with the elaborate study it has received in this country. Look, for instance, at the arrangement of one of our Municipal Buildings or Assize Courts, the successful design, may be, in a well-managed competition; what an immense amount of consideration has obviously been given to the separation of the various departments, their arrangement relatively to each other, and the avoidance of any clashing in the different routes of traffic; in the courts see what provision is made for convenience of access by the judge, the jury, the witnesses, prisoners, and public, each of these being almost entirely distinct from the others. Compare this with contemporary examples abroad; instead of a pinched-up building, pitchforked in between commercial premises, or with half its frontages abutting on narrow alleys but 20ft. or 30ft. in width, we find a massive and imposing pile, its dignity enhanced by judicious isolation from all mean and unworthy surroundings; instead of coming on our building by chance, as it were, we approach it by a noble avenue or a spacious square; but, once inside, we find it, as far as ingenuity of arrangement goes, far inferior to the cramped little concern familiar to us at home. The rooms are lofty, the corridors spacious, and everything is calculated to impress one with the importance of the building and its uses, but as regards the specific provision for its purpose, very little consideration seems to have been expended; in many cases an outline plan would hardly inform one whether the building was municipal, legal, or residential in its intention, while few modern plans in our own country would fail to show at a glance whether they were for town hall, law court, or palace. Lest we should feel inclined to congratulate ourselves unduly, it behoves us to consider whether we do not attach too much importance to our clever

little schemes for specialising the routes and entrances in our designs, and whether the Englishman's mania for privacy is not carried beyond what is either essential or desirable. If we paid less attention to these matters, and more to increasing the scale and dignity of our buildings to the utmost permitted by the site and means at our disposal, we should certainly do something to take away the reproach that our public buildings are rabbit warrens, lacking the importance that should distinguish them from their surroundings, and make them the dominating features of the cities to which they belong.

H. V. L.

The Effect of Social Conditions on Building.

In our daily practice as architects we continually come face to face with various phases of one of the great social problems of the day—the adjustment of the conflicting claims of capital and labour. While it can hardly be considered our province to concern ourselves with these matters for their own sakes, yet they interest us in so far as they affect the practice of Architecture. It is not exactly our duty to insist on the rights of the working-man to a better wage,

profit in order to obtain work, and if, after obtaining the work, a strike and rise of wages threatens to deprive them even of that nominal profit, with the result that they try to save it somehow on the building—to the detriment of the building—again it affects us to that extent. It would seem that the general tendency of human affairs is in the direction of co-operation, of collective work as opposed to individual work. In our own time we have seen the growth of large contracting firms, who do the work which, in old days, would have been done by a dozen different independent builders. It is, however, noticeable that a certain distrust of the present system is daily growing stronger; a belief that the general contractor is not quite so necessary as some people make out. We are all aware of most that can be said in his favour—that his existence seems best to fit in with the general structure of mercantile life, that by his help cheap contracts are obtained, and that the building owner would never know where he was without him. But these considerations, however forcibly they may appeal to the building owner and the general business man, are not, and cannot be, our first concern. Our first thought is for Art, our first care is to get the building properly built, and if the present contract system is found to throw difficulties in the way, to that extent it must be condemned. It seems



The Abbot's Kitchen
Glasgobary

"CHIMNEYS." SKETCHED BY CHAS. TOMLINSON.

to more leisure and opportunities for self-culture; or, on the other hand, to deplore the keen competition and the growing demands of labour, which cripple the contractor. As social problems they do not directly concern us. But if the discontent of the workman, and the conditions under which he lives and works, are such as to render it impossible for him to put his heart into his work and do his best on the building, it affects us to that extent. Or again, if the competition among contractors is so keen as to force them to cut their prices down to the merest nominal

obvious that the more direct contact there is between the men who design the building, and the men who actually carry it out with their own hands, the better for the building. The more the artisan can be got to take an interest in his work, the more intelligent will be his labour. The fewer middlemen, therefore, between the artist and the craftsman the better; and if the general contractor degenerates, as he seems likely to do, into a mere middleman and general financier, it seems evident that he is of no further use as far as the interests of Art are concerned.

And in so far as this contract system deprives the craftsman of the reputation which is due to honest and skilful labour, and tends to destroy his interest in his work, thus depriving the architect of that intelligent and sympathetic co-operation which is necessary to obtain the best results, so far must it stand condemned. There have been, up to the present, two distinct and opposite methods of conducting building operations, typified on the one hand by the system of the Greeks and the builders of the Middle Age, and on the other hand by that of the Egyptians and the Romans. In the first system we find a body of intelligent and enthusiastic workers, banded together under the guidance of a chief, every man taking an interest in the work, and feeling himself entitled to his share of the credit and reputation. In the other system we find a crowd of unthinking and unwilling slaves, under the direction of one or two men who do all the thinking for them. The first is the method which has led to the best results in the past, from an artistic point of view, but the second is the one which, in a complicated state of society, seems to produce the best results from a practical and financial point of view. In the last few years we have seen it employed with wonderful success by the Germans in the organisation of their army and their manufactures. But though a man may be able to feed a machine equally well, whether he get the credit or not, yet he cannot hammer a wrought-iron grill, or execute an intricate piece of masonry, quite in the same indifferent and cold-blooded manner, and still obtain the very best results. It might be rash to assert that artistic workmanship cannot be obtained except by following the method of the Greeks and the builders of the Middle Age. It is not so much their method as their spirit that we want. The day of the master mason, the trade guild, and the apprentice seems past; if so, it is useless to bewail it. The problem before us is to find some means whereby the principle of co-operation can be worked out in the building trades, and in such a way as to assure to every man such reward, both in money and reputation, as his work deserves. While the architect may be thankful that his Art, as a conception in the ideal world of thought, is independent of social conditions and systems of government, yet he has to remember that it is practised in a practical world of affairs of profit and loss, and that the social conditions in which he finds himself—and particularly the system in vogue for carrying out building operations—have a great influence over the realization of his ideas. It is therefore to his interest to perfect and simplify this system, to condemn any method that tends to prevent the best results; without any concern for political, practical, or financial interests, all of which are, at the present day, only too capable of taking care of themselves. A. R. J.

Maidstone and its Lessons.

It is now getting well on to three months since Maidstone was, through the apathy of its authorities and the foulness of its water supply, visited with the dread typhoid, which, sooth to say, still shows much more virulency and tenacity than could be hoped or expected. We would not have referred to this unpleasant subject were it not that the outbreaks at Lynn, Sunderland, and in our own metropolis, point a very strong moral if they do not adorn a very pleasant tale, but we must, ere it be too late, impress upon our local and other authorities the necessity of seeing that their drains and water conduits and reservoirs are put in thorough and cleanly order at once, in order

that the populations may be in the enjoyment of pure water and cleanly surroundings before the hot summer is upon us again. When we find that the water supply of London has been characterised by no mean authority as semi-filtered sewage and drainage, it behoves us to put the pertinent question to our parochial and water authorities: "Are we safe from such an attack as has visited Maidstone, not to mention other places?" And we must candidly say that we think we are not. Very little is, as a rule, done in the prevention of disease, those responsible for the health of the universe adopting a happy-go-lucky method, and trusting to good fortune to pull them through. We have only to point to Worthing, Maidstone, Lynn, and the East End of London last autumn as cases in proof of our rather free assertion—an assertion warranted by results—which epidemics, we venture to say, stand as a lasting disgrace to the powers that be. When we find that the pipes and conduits had not been cleansed for years, and that they were covered with a foul and evil fungus growth, as we did find was the case at Maidstone, and when we learn that the pipes had not been flushed for years, are we not justified in feeling an anxiety regarding the method in which we receive our water from supplies other than the Farleigh spring? It requires some such visitation as this to teach our authorities wisdom; it required the plague of London to impress upon the inhabitants of the city the virtue of cleanliness; and it was necessary to burn the metropolis down to enforce the lesson for sanitary requirements. The same occurred at Rome and Athens in ancient days, and it will ever be the same until our authorities do their duty, not intermittently as now, but persistently and constantly. Look to it, you sanitary and water authorities, and put your houses and reservoirs in order, or, if you neglect this duty, the responsibility be wholly yours, and *pour encourager les autres*.

W. N. B.

LITTLE-KNOWN CORNERS OF LONDON.

AMONG the curious corners of London, few are more interesting than the little-known sites of the old district markets which once played so great a part in the domestic economy of the metropolis. Nearly all the sites of the old markets we are considering still preserve the exterior square or oblong ring of old houses which surrounded the central market-house. All sorts of tricks have been played with the central area, but the surroundings are in general unaltered. These markets seem to have originated with John Holles, second Earl of Clare, for Howell in 1657 notes that in St. Clement's Fields the Earl has built a palace for himself, a street of houses, and a market, all bearing his name. Clare Market has long been covered with slums, which in their turn are giving way to business premises, a Government laboratory, &c. One of the latest clearances, the Colonnade, was a relic of the old market stalls. Brooke Market (now called Brooks's), at the north end of Brooke Street, Holborn, was erected by Lord Brooke after the Restoration, on the site of his town mansion. The market-house was pulled down a century ago, and succeeded by four streets of slums, which have just been cleared away to make way for "models." The old houses around the market square remain much as they were two hundred years ago. Not far away were situated

FLEET MARKET AND NEWGATE MARKET.

The former was originally the Stocks Market, removed in 1737 when the Mansion House was built to the covered-in surface of the Fleet Ditch. When the road from Holborn Bridge to Blackfriars Bridge was widened in 1828, Fleet Market was removed to a site on the west side, and re-named Farringdon Market. It then covered the workhouse graveyard

where poor Chatterton was buried, but was finally abolished four years ago, and Farringdon Avenue has been built on it. Newgate Market is now called Paternoster Square, and here again, says the Westminster Gazette, the old houses around may be clearly recognised. The square lies between Newgate Street and Paternoster Row. The market-house has been succeeded by a block of publishers' warehouses. Red Lion Market is reached by narrow courts, which approach it from Golden Lane on one side and Whitecross Street on the other. Its origin is unknown, but there is good reason to suppose that it was laid out at the end of the seventeenth century on the "upper churchyard" of St. Giles's, Cripplegate, which was closed just before the plague year because of its crowded state. Carnaby Market, or Marlborough Market, was erected on the site of the great plague pit and pest house which Macaulay mentions as existing on the east side of the modern Regent Street. Carnaby Market is now covered with grimy tenement houses in West Street, &c. Newport Market long remained in the hands of the butchers; it is now covered with tall blocks of "models." St. James's Market, established by the Earl of St. Albans in 1664, occupied the space between Jermyn Street, the Haymarket, Charles Street, and Regent Street. George III.'s Quakeress, Hannah Lightfoot, lived here in Market Street. The market was abolished in 1818. The market-house was at the end of Norris Street. Market Lane, a narrow cartway which led from Pall Mall to the market, has been

ENTIRELY TRANSFORMED,

being now represented by the covered arcade at the rear of Her Majesty's Theatre. Westminster Market is now covered by the Westminster Guildhall, and Hungerford Market, erected in 1680, by Charing Cross railway station. Oxford Market was pulled down in 1880, and Oxford Mansions, a block of flats on the north side of Oxford Street, mark its site. Fitzroy Market, on the north-west side of Tottenham Court Road, was erected by the Duke of Grafton; it was pulled down in 1875 and built on. Mortimer Market, on the opposite side of Tottenham Court Road, is but a name to-day; and Bloomsbury Market, erected by the Earl of Southampton late in the seventeenth century, is only commemorated by the name of Market Street, at the junction of Bury Street and Holborn. At the East End, Hoxton Market is now only a dreary square, surrounded by "models" off Coronet Street. The quaintest survival of them all is to be seen over the water at St. George's Market, which lies within the triangle formed by the junction of London Road and the Borough Road. Here the old houses remain as of yore, though now converted into tenement houses, but the stalls in the centre have never been demolished. Instead, some economical owner has converted the shambles into one-story cottages on one side of the square, while those on the other have been utilised as a wheelwright's shop. The arrangement cannot be commended from a sanitary point of view, and it is not surprising that the vestry has for some time been considering the purchase and demolition of these stunted habitations.

MERCHANTS and leaseholders of Finsbury Circus and London Wall have passed resolutions of protest condemning the proposal of the Bridge House Estates Committee of the Corporation to pull down the south side of Finsbury Circus as a wanton destruction of property, and the proposal to pull down London Wall and offer the site for public auction as a very unfair treatment of old tenants.

At a recent meeting of the Halesowen District Council, complaints were made that three brickworks had been erected in the parish, and no plans of the buildings had been previously submitted to the Council. The clerk said the point raised was one of considerable importance, and having well considered it, he was bound to advise the Council that it could not enforce the owners of brickworks to submit plans of their buildings.

CHIMNEYS.

BY CHAS. TOMLINSON.

PERHAPS no part of our dwelling-houses has a greater influence upon our comfort than the fireplace. The poetical quotations associated with the blaze are numerous. As Sir Walter Scott says:—

Heap on more wood! The wind is chill.
But let it whistle as it will,
We'll keep our Christmas merry still.

In dealing with this subject, I shall take the term "Chimneys" as being applied only to the stack and the flue, touching upon the fireplace no more than is absolutely necessary.

HISTORICAL.

The time, if ever such an one existed, when man was unacquainted with the element of fire must now necessarily be very remote, for no traces of such a period have been found by either geologists or antiquarians. As far as we can learn, the earliest form of hearth consisted either of one large flat stone or a number of smaller ones. These would be laid in the centre of the hut, either on the floor or in a pit dug in the ground, and the smoke was got rid of by means of a hole in the roof. It is far from improbable, though, that even this simple exit did not exist, the smoke being allowed to fill the apartment at will. Even to-day some savage tribes, viz., the Esquimaux and the Tierra del Fuegians, are no further advanced than this primitive method. A little later than this the fires were sometimes raised. We know that nearly all the nations of antiquity who laid any claim to civilisation had either stone or metal altars on which they lit the sacred fires to their gods, as, for instance, the Egyptians, Israelites, Phoenicians, and both the Greeks and the Romans. It is extremely probable, however, that in the warm and genial climate of Palestine and the adjoining countries the fires for domestic purposes were made in the open air in a great many cases.

Only one mention of chimneys occurs in the Bible—in the prophet Hosea, chap. xiii., verse 3. The prophet, speaking of the wicked, says, amongst other similes, that they shall be as "the chaff before the whirlwind" and as "the smoke out of the chimney." Whether the word used here means anything like the modern chimney or not we cannot judge. The Greeks and Romans often used tripods or braziers to carry their fires. In our illustrations is a sketch of a Roman tripod found at Pompeii.

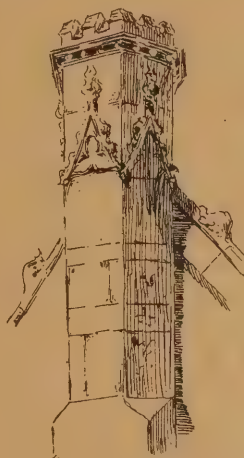
The Greeks, however, acted on the maxim "Prevention is better than cure," and instead of inventing methods of disposing of the smoke, exercised their ingenuity in devising means of stopping its production, as for instance, having their tripods outside, burning a little incense in them, &c. The Romans also were troubled by the smoke nuisance. Even the Roman civilization got little farther than a hole in the roof with a moveable cover, however, though some of the rooms had a heating chamber underneath, in order to warm without filling them with smoke. Many of the wealthier citizens had two suites of rooms, the one for summer, and the other for winter use. We find Vitruvius recommends the decorations, &c., of the latter suite to be plain and dark-coloured in order that the effects of the smoke should not be so soon seen.

Turning now to our own country, the chimney in England was little developed until the time of Henry VIII. For long after the Norman conquest the fire was made on the floor with the customary aperture in the roof. This hole was supplied with a moveable cover of wood or metal, termed a "couver-feu" (from the French "couvrir," to cover, and "feu," fire), which was put on when the fire was extinguished. These covers gave the name to that institution of William the Conqueror—viz., the curfew, or bell tolled every evening at a certain time for the fires to be put out. Later these covers were made with louvers to let the smoke escape, and still keep out rain, wind, &c. Thus was developed the central lantern or turret, with openings for the smoke, as at the Abbots' Kitchen,

Glastonbury. This is perhaps one of the earliest chimneys in Britain. Others of the oldest chimneys are at Winwall House, Norfolk, Kenilworth, and Conway Castles, supposed to have been built in the twelfth century.

I have seen it surmised by some writer that the earliest form of flue consisted of sticks interwoven with one another and with corner posts (one side being against a wall), and then plastered both sides with clay, which would soon harden with heat. Still, we should judge this form of flue to be excessively flimsy. In Rochester Castle, built about 1130, there are complete fireplaces with projecting chimney-pieces, and formed by moulded semi-circular arches. The flues go up a few feet only in the thickness of the wall, and then out at the back. The apertures have small stones placed across them to break the force of the wind. There is a fireplace and flue somewhat similar to this at Conisborough Castle.

The next step in the development of the chimney was to carry the flue a much greater length up the wall before allowing the smoke to escape. A good example of this form is to be seen at Aydon Castle, Northumberland, date about 1280. From this stage it was an easy and natural transition to the proper chimney "stack" rising above the roof. Some



Northborough



Thornbury Castle



Layer Marney

"CHIMNEYS." SKETCHED BY CHAS. TOMLINSON.

of the earlier chimney shafts were frequently of great height, and circular; in the fourteenth century they are often found very short, as the example at Chepstow Castle. A little later the forms of shafts became much varied, being made, perhaps, square, circular, octagonal, or even hexagonal. They were often most richly ornamented, as at Northborough, Northamptonshire (date 1340). Other specimens of these octagonal shafts still exist at Burford and at Exton, Northumberland, the date of these latter being about 1350. Examples of these chimneys, however, built in the fourteenth and fifteenth centuries are rare, as they only became anything like general about the early part of the sixteenth century, when clustered shafts began to be used, as at Thornbury, Gloucestershire (date 1514). About this period also many fireplaces were added to older halls. These new fireplaces were often built of brick even in stone houses, courses of bricks being introduced occasionally in herring-bone fashion at the back of the fireplace.

Old fireplaces of about this time may not be uncommonly seen, and we all know the appearance of some of these huge kitchen fireplaces, which seem almost big enough to allow of an ox or sheep being roasted whole. John Leland, a learned antiquary, who flourished during the reign of Henry VIII., in his "Itinerary," Vol. VIII., p. 66, says:—"One thing I much noted in the Haulle of Bolton, how chimeneys were conveyed by Tunnels made on the Syds of the Wauls betwixt the lights in the Hawle, and by this means, and by no covers, is the smoke of the Harthe in the Haulle wonder strangely

conveyed." Leland's "Itinerary" is a much noted record of the author's travels from place to place, and it is evident that the "chimeneys" at Bolton must have greatly impressed the author by the fact of him recording them in his book. This is the earliest written record we have of the existence of chimney flues.

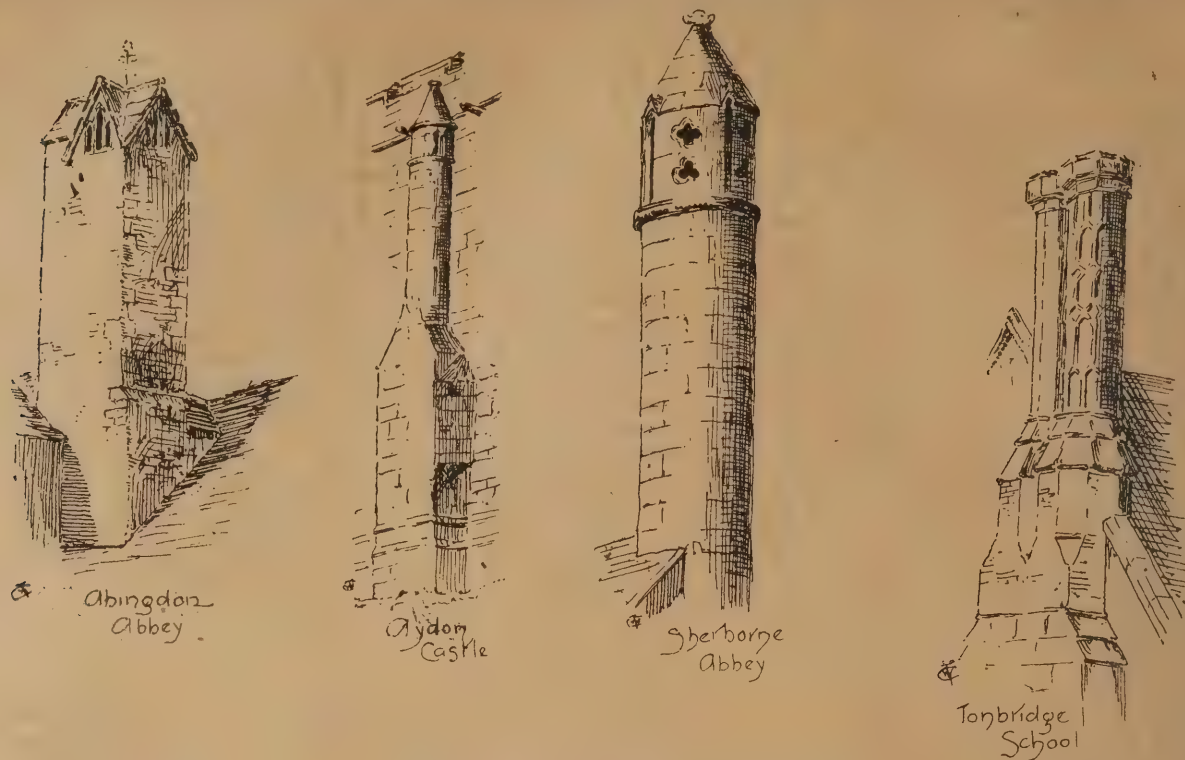
There is no reason for supposing that chimneys were much, if any, further developed upon the Continent than in England. Galeazzo Gatarro, an Italian author, who died A.D. 1405, in his "History of Padua," states:—"Francesco da Carraro, Lord of Padua, came to Rome in the year 1368, and finding no chimneys in the hotel where he lodged (because at that time fire was kindled in a hole in the middle of the floor), he caused two chimneys, like those which had long been used at Padua, to be constructed and arched by masons and carpenters whom he had brought along with him. Over these chimneys, the first ever seen at Rome, he affixed his arms which were still remaining." From the foregoing extract we may judge that Italy was no further advanced than England with regard to the methods of disposing of her superfluous smoke. Chimneys had, comparatively speaking, come into common use by the time of Elizabeth (1558-1605). We have many fine examples of brick and stone shafts of about this period remaining, as at

Layer Marney, Essex, Hampton Court, Middlesex, East Barsham, Norfolk, and at Badwell Hall, Suffolk, some of the above being most ornate. No change of any moment either in the flue or the stack has taken place since the end of the sixteenth century. The only alterations connected at all with the subject are, perhaps, in the form of the fireplace, where the iron or brass "dogs" have been superseded by the grate or "range," and from the early stone curb has gradually evolved the modern fender.

PRACTICAL.

Flues, stacks, &c., are eminently portions of a building which appeal to the "practical" man, for they are essentially useful constructions as distinct from merely ornamental ones, for by no stretch of imagination can we fancy it possible that a chimney flue or stack would be erected solely for ornament. Bricks are the material, *par excellence*, for building chimney flues. Even in stone buildings bricks are nearly always used for the construction of the chimney breasts. They are so convenient, being all of a size, for turning the multitudinous angles, that they are to be infinitely preferred to stone, though, of course, in a stone building, when the shaft reaches the roof, it must be completed in stone to match the walling.

A dissertation upon the different kinds and qualities of bricks, mortar, &c., would here be out of place, as really belonging to an essay upon building materials generally. And, of course, by the same reasoning, it is totally



"CHIMNEYS." SKETCHED BY CHAS. TOMLINSON.

unnecessary to go through all the rules of good brickwork, bond, &c., which apply equally as much to the chimneys as to the walling. The outside walls of chimney flues are usually built only 4½ in. thick, but it is much better to have them 9 in., on account of the danger from fire. The flues get extremely hot, and any wood plugs, &c., driven into the walls for purposes of affixing skirtings, angle beads, and other joinery, are liable to get overheated and take fire. Patent bricks, however, of coke-breeze, concrete, and other materials which will take nails, are now made, and may be used instead of wood plugs to avoid this danger.

In a case—as occasionally happens—where a floor beam or a roof principal runs into a chimney breast, the danger of over-heating may be avoided by either encasing the end of the beam in a cast-iron box, or, which is perhaps the better method, by corbelling out the bricks so as to carry out a stone template, upon which the beam or truss may rest, as shown in one of the accompanying sketches. In building a flue, the bricks are brought over by means of a "gathering stone," so as to form a "throat" to the fireplace, and also to bring the flue to its regulation width. This throat is formed just above the fireplace lintel or arch. The flue is usually taken to one side of the breast, and then carried up as straight as circumstances will allow, though, oftener than not, the flue has to be twisted more than once, by reason of the fireplaces above. But every flue, even one from an attic fireplace, should have a little curve from the perfectly vertical given to it, so as to prevent snow, rain, &c., from coming down on to the fire. Flues are much better gathered together into a stack, than if taken up singly. The reason is that a more equable temperature is preserved among them, and they are thus rendered much less likely to smoke; also, they are decidedly more stable in a strong wind. This system of taking up the flues together can be easily carried out where fireplaces occur one over the other, and, in the usual type of terrace houses, with fireplaces in the front and back rooms, the flues can easily be brought together in the false roof and formed into a single stack at the ridge. A very sharp angle, that is one under 135 degrees, necessitates an iron soot-door being built just at the turn, in order to effect an easy removal of the soot which is apt to collect at an angle. The soot-door at an angle of 135 degrees is a requisition in an Act of Parliament.

The ordinary size of a flue is 14 in. by 9 in.; for large kitchen fireplaces 14 in. square is sometimes built, and for very small bedroom fireplaces flues 9 in. square are quite big enough. During its erection, the interior of a flue should either be rendered in Portland cement or else pargetted with mortar. This rendering, of course, affords the smoke an easier chance of escaping. In the twisted portion of a flue the overlapping courses should have their corners knocked off, the angles on the other side being filled up flush with mortar. Flues are sometimes pargetted with a mixture of lime and cowdung, this material being tougher than mortar and less liable to crack with the heat. In some cases glazed earthenware socketed pipes of 9 in. diameter are built in inside the flue. This system gives a very smooth and easy passage for the smoke, though it is sometimes objected to on the ground that when the surface is so exceedingly smooth the soot is apt to collect and fall in lumps. Also iron flue-plates with flange joints are a recent invention. These may be used in the place of the ordinary brick midfeathers, thereby much lessening the size of the stack.

When the shaft reaches the roof the remainder of the brickwork should be built in cement, and be finished off to match the external walling. This often necessitates a good deal of cutting of the bricks to form the bond, and great care should be taken to see that the midfeathers are all well bonded with the outside walls and with one another. The flues are usually completed with glazed earthenware chimney-pots, which should be carefully fixed in cement. The roof timbers should always be trimmed to avoid the chimney stacks, and not run into them, as is too often the case. At the junction of the slates or tiles the brickwork should be properly flashed with lead to avoid water getting in at the junction, and a small lead gutter should be formed on the top side of the stack. But that nineteenth century production, the "jerry builder," is, however, quite independent of any lead flashings. A fillet of mortar just run round the brickwork and slates constitutes to him a quite sufficient protection from the weather.

(To be continued.)

THE dispute at Penrhyn, Cornwall, between Sir John Jackson and the stone masons engaged in raising stone for Keyham Dockyard extension works, has been settled.

ANCIENT BUILDINGS.

PRESERVATION AT HOME AND ABROAD.

A NEW north-western tower is to be added to Chichester Cathedral. It is, of course, no news to those interested in our ancient buildings, says the Daily News, in commenting on this fact, that the West Front of Chichester Cathedral was destined to fall, like the West Front of Peterborough, into the hands of the destroyer under the name of restoration. But the letter from the Society for the Protection of Ancient Buildings, stating that a contract had already been entered into for the pulling down of the old and the erection of a new north-west tower, is a severe blow to those who hoped that want of funds might prevent the attempt to carry out the design till some general measure had been adopted to control such design. In this connection the recent publication of the last annual address of the, alas! that we should have to say the late, President of the Society of Antiquaries comes in with great appropriateness. The remarks of Sir A. Woollaston Franks, who has enriched the department of the British Museum over which he presided with the most splendid additions at his own cost, would in any case carry great weight. Written as they were within a few days of his death, when the shadows were already gathering round him, they come with even prophetic force. After recounting the efforts made by himself and the Society to save the West Front of Peterborough, and expressing grave doubts whether "the restoration of ancient buildings should be confided to an eminent architect whose business is rather to construct new ones," he, a Conservative and a staunch supporter of the "Establishment," addressed this

WARNING TO THE "RESTORING" FANATICS:—

"It need scarcely be said that the political aspect of archaeological questions does not in any way concern this Society. But it is scarcely to be expected that the high-handed action of the Dean and Chapter of Peterborough Cathedral in a matter which should have been the subject of their grave deliberation will be forgotten by those political parties who are opposed to the existence of all Deans and Chapters. This controversy, therefore, though it seems now to have resulted in a victory for the Dean and Chapter and the advocates of 'restoration,' may have sown

seeds that will bear bitter fruit for the Ecclesiastical foundations of England. However this may be, one pleasing feature is the number of letters that have come to the Society, not only from sympathetic strangers, but from practical men, architects, and builders, asking for copies of the Society's statement and the specification, that they may make use of the more conservative method there advocated in work in which they are engaged. Not only from these, but from clergymen in all parts of the country, who are anxious that their churches should benefit by the adoption of the better, and generally cheaper, plan, similar appeals have been received. It is thus not easy to estimate the good that will result from the sturdy fight that we have made for the preservation of Peterborough Cathedral, a fight with which, as I said before, we have reason to be satisfied, though the victory is claimed by the other side. The partial destruction of the west front of Peterborough, and the threatened disfigurement of St. Cross Hospital, near Winchester, by their legal guardians, have again shown the urgent necessity that exists for some legislation to enforce publicity, and the restraining influence of some external sanction, before the trustees of ancient monuments are allowed to destroy or deface them by so-called restorations or

INCONGRUOUS ADDITIONS."

He then pointed out that in April, 1896, long before the "Peterloo" of anti-restorers was imminent, the Society had taken a most important step in this direction, by obtaining through the Foreign Office, which showed the most sympathetic interest, returns as to the existing legislation on the subject in foreign countries. A summary of these returns, which will in due time appear in the form of a Blue Book, follows. It is too long to quote in detail. But apropos of France, which was "held up as a 'shocking example' of the evil results of putting ancient monuments under State protection," it is remarked that the law giving this protection "was only passed in 1887, and the Commission to enforce it only instituted in 1889, when the destructive restoration, which is worse than neglect, had already marred several of the finest mediæval buildings in the country. It should also be remarked that, unfortunately, owing to all the churches and most of the castles being vested in the State, the regulative and restraining authority is only to a slight extent differentiated from the initiating and executive authority over ancient buildings. The final authority both for proposing and criticising restoration is the Minister of Fine Arts, and the very architect to whom he may have to look

FOR RESTRAINING RASH RESTORATIONS

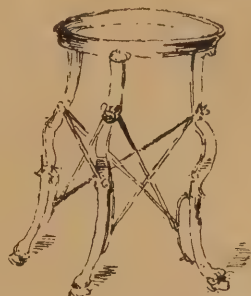
may be the architect who, for the sake of a lucrative job, has already proposed it." In Germany Bavaria takes the lead, "where stringent and admirable legislation has existed for many years." Since 1872, "if public (including Ecclesiastical) buildings are proposed to be restored in any important particular externally, the plans have to be submitted to the Crown. They are examined by a committee of Public Buildings, . . . from an artistic and historical point of view." "As regards interiors, an order was issued in 1895 forbidding any restoration until the plans had been approved by the Department" of Education and Public Worship, in the case of churches and colleges, War Office, or as the case might be. In all cases now the Department is guided by the "Board of Trustees of Bavarian Ancient Buildings. This is constituted of four persons who are authorities on the history of Art, the architect, the artist." "Not only are the clergy not allowed to pull down their churches, but they are not encouraged to expect promotion by what the Department calls 'the restoration mania.'" In Belgium, since 1835, there has been a

"ROYAL COMMISSION OF MONUMENTS"

to advise on repairs required for monuments "remarkable for their antiquity, their associations, or their historical value, as well as on plans for the construction of new places of worship, or the restoration of old ones." The

Commission has five year scholarships for architects "regularly instructed in the true principles and practice of the restoration of ancient buildings." In Rome, since 1820, has existed "the first example of a Government Commission for the preservation of historical monuments and antiquities, composed of a high State official, Inspector of Fine Arts, Inspector of Public Pictures, the Commissioner of Antiquities, the Director of the Vatican Museum, the Professor of Sculpture, and Professor of Architecture in St. Luke's Academy." No church or other ancient building may be touched without their consent. In Sweden and Norway churches "'distinguished by unusual Architecture or ancient ornaments, or to which historical memories cling,' may not be demolished, altered, or turned to other uses without the Royal consent." "There is a State Antiquary kept, who may be called in by the Archaeological Academy." The general result is thus set out: "On a general survey of the information given in response to the Society's inquiries, it appears that every State

has been paid to the so-called rights of private property, are precisely the countries in which there is the most immediate hope of future measures in the same direction. The next most important work, the formation of an Inventory or Register of Ancient Monuments, whether prehistoric or historic and artistic, whether the objects included in it are or are not placed under the protection of the State, has been attempted in Italy, France, Spain, Austria, Bavaria (so far as concerns prehistoric monuments), and Greece. It is with great satisfaction that the Society, through its representative, Mr. Philip Norman, has taken part in the movement initiated by the London County Council, for the formation of a similar register for London; while, in pursuance of a promise given to the Society on the occasion of its attempt (too late) to save the Rolls Chapel, the Chief Commissioner of Works, Mr. Akers Douglas, has furnished Parliament with a return of the ancient public buildings under the charge of that department." Cases like this of Chichester Cathedral



Tripod found at
Pompeii
28 high



Chesham
Church



Burford



Tisbury

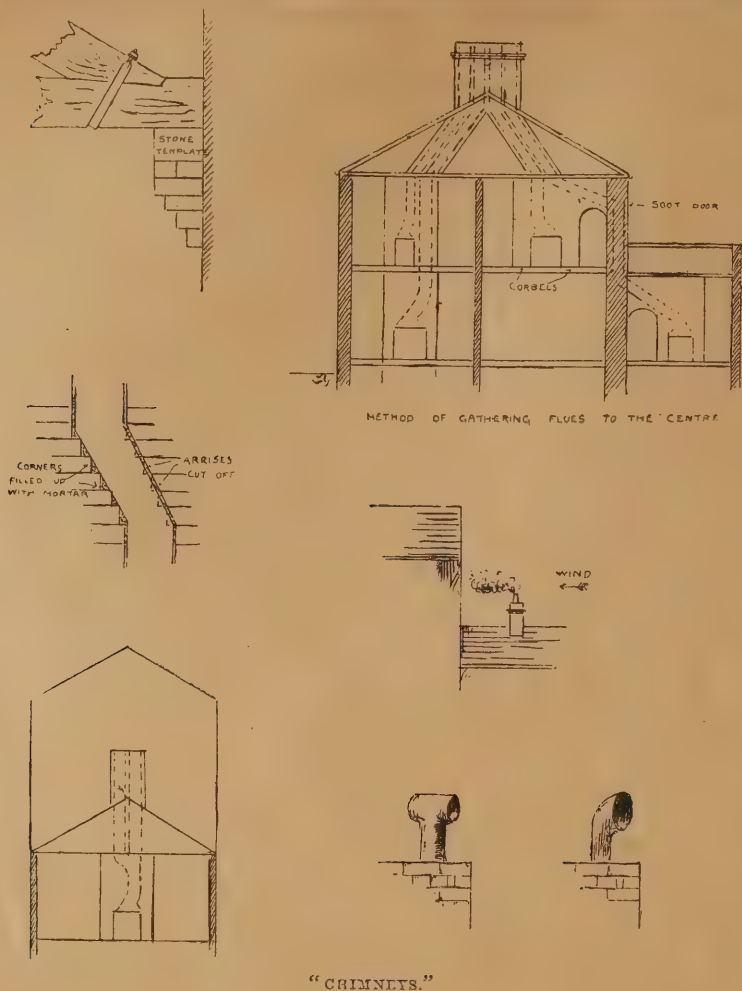
"CHIMNEYS." SKETCHED BY CHAS. TOMLINSON.

in Europe, except Russia, does more for the preservation of its historical monuments than our own; and we are only so far in advance of Russia in that we once passed an Act for the protection of a limited class, and that in an artistic and historical sense, the least interesting class of monuments; which was almost at once practically repealed by administrative obstruction. Italy, and in Italy Rome, may be regarded as the original parent of all legislation on this subject. Its principal work, the establishment of a Commission, comprised of officials and experts and artists, specially charged with the

PRESERVATION OF HISTORICAL MONUMENTS,

has been followed by France, Spain, and Belgium, among Latin countries; by Austria, Bavaria, Saxony, Holland, and Switzerland among Teutonic peoples; by the Scandinavian countries, and last, but not least, by Greece. It is noteworthy that those countries like Italy, Greece, and Sweden, in which legislation, though not perhaps the best enforced is the most stringent, and where least regard

the Daily News concludes, show the urgent need that there is that we should follow the example of the most enlightened countries of Europe, and control our restoration maniacs. The letter mentioned above, from the Society for the Prevention of Ancient Buildings, is as follows:—"The Committee of the Society for the Protection of Ancient Buildings desires that you will kindly give it the opportunity of making it known to all lovers of mediæval Architecture that a new north-western tower is to be added to Chichester Cathedral. In calling attention to this after a contract had been entered into, we would explain that we had not contemplated the possibility of the Dean and Chapter going forward before larger funds were at his disposal. In 1892, the late surveyor to the Cathedral made a long and detailed report, stating what repairs the Cathedral Church needed, and among other necessary repairs was included strengthening the western bay of the nave. Shortly afterwards it was suggested that a new north-west tower should be built. But very little has appeared in the public Press upon the subject



"CHIMNEYS."

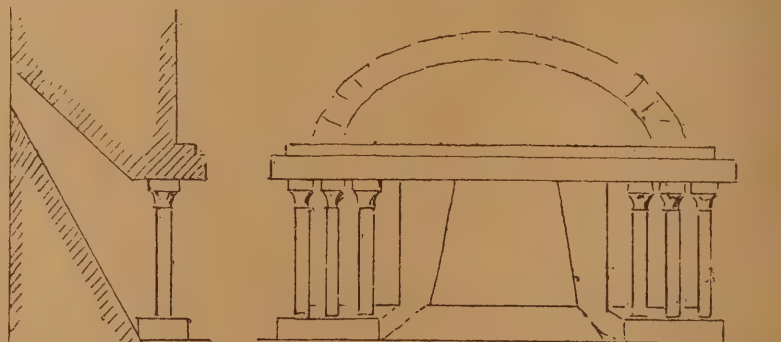
except a letter signed 'A Sussex Churchman,' strongly opposing the scheme, which appeared in *The Times* of September 14, 1897, and elicited no answer. Our Society has now received a copy of *The Chichester Diocesan Gazette* for this month, which contains a drawing of the proposed new tower without an architect's name attached to it. It is to all intent a copy of the existing south-west tower. There is also an article stating that a contract has been entered into for building the first 46ft. of this new tower, which is about half the proposed height. The south wall will be formed by adding to the height of the western bay of the ancient north arcade of the nave, and its eastern wall, by carrying up the western wall of the north aisle of the nave. It is the opinion of three architects from this Society who visited the church recently, that the ancient work could, without risk, be repaired and secured, but that to incorporate it into

A USELESS NEW TOWER

and make it carry additional weight would be unreasonable and dangerous. It must not be forgotten that the magnificent campanile stands within a few yards of the site of the proposed sham Norman tower. The question, therefore, arises: Is it desirable to risk the sacrifice of the ancient work—a beautiful example of Norman Architecture—for the sake of an imitative tower? We gather from the drawing referred to that as parts are marked 'old' it is suggested that the unknown architect might retain the existing work and build on to it; but it must be pointed out that a common procedure in these cases is to begin on some pretext and then to put forth supplementary reports saying that the work proves to be so dangerous that notwithstanding the architect's best intentions, it must be entirely rebuilt. My Committee wishes the alternative proposals for dealing with this angle of the building to be clearly understood. On the one hand a scheme of repair which they have only just laid before the Dean and Chapter could be carried out without danger or the

addition of any imitative work, and large sums of money might be saved towards the general repairs which, according to the Cathedral surveyor, are so sorely needed. On the other hand, these needful repairs may still be neglected and the money spent in a brand new and worthless tower, the attempt to erect which may lead to a large destruction of the original work of the twelfth century. It must further be pointed out that it was the avowed scheme two or three years since to build this modern tower as a preparation for a spire, and also to add a new spire to the south tower, thus risking the safety of that tower also by the additional weight, and smothering the lovely old work in modern trivialities. We hope that the opinion of the public will yet lead the authorities to give up their destructive scheme."

THE Hermitage Gallery at St. Petersburg, which contains some of the finest pictures in the world, is closed for a year, in order to allow time for a thorough restoration of the buildings.



Fireplace Conisborough Castle

From Kings 'MONUMENTA ANTIQUA' pub. 1804.

THE SITE OF MILLBANK.

A GOOD deal of disappointment has been expressed in one or two quarters that the ten acres which old Millbank Prison took up should not have been kept as a public park for the poor of Westminster and Lambeth to breathe in. There is very little probability that the destination of the site will suffer much change now, in spite of this disappointment, for on the half of it which the London County Council has taken for workmen's dwellings the drains are already being seen to and the roads are already being laid down. But the case is not quite so bad as the Public Places Preservation people would have us believe, for the County Council is doing its best to make the new area a model one in its way. It will be spacious and airy; it will have baths, washhouses, and a Board School; and, since the poor must be housed somewhere, and remembering that this special site was selected in order to accommodate the poor people who will be turned out of Clare Market in order to make room for other London improvements, it may be in some sense as great a boon as if it were devoted to the purposes of a park. As a park it might, not improbably, have so raised the value of property in the neighbourhood of Westminster as to confer a benefit on the middle classes, who would have come to live there in flats. As a poor man's village it may raise the tone of the Westminster slums, and it will be a boon to the Clare Market people, whom it will house at a distance not too extensively distant from their means of livelihood in Covent Garden. The area will be split up into blocks of dwellings; and the whole 8½ acres will accommodate 4380 persons—roughly speaking 500 to the acre. The plans of the houses are not yet finished and approved, but they may be said in a general kind of way to follow upon the models of the County Council's improved area at Boundary Street, Bethnal Green—an area with which in its unimproved condition the public was lately made familiar under the title of "Old Jago." The roads are all to be 50ft. in width, and all the rooms of all the houses are to have what is called a "forty-five degrees lighting," which is to say that from every room the dwellers will be able to see the sky. There is to be a public garden which, as can be seen from the plan, faces the Tate Gallery, and so the outlook from this building will at any rate be well preserved. A further tribute of respect to British Art is to be paid in the names of the buildings, which will be named after British painters—not excluding the water-colour men, and including Mr. Ruskin. The last two Presidents of the Royal Academy are thus to be immortalised. It is not easy to say when the scheme will be finished, for the Council is anxious to make the erection of some of the dwellings contemporaneous with the demolition of parts of Clare Market and the removal of the district's population. But since the Board School is to have a playground, and the two spaces on either side of the Tate Galleries are to have barrack yards, enough has been said to show that the Millbank site should be a healthy and an airy one.

RENAISSANCE ARCHITECTURE IN MALTA.*

By A. S. FLOWER, M.A., F.S.A.

MR. ARTHUR S. FLOWER, M.A., F.S.A., in a paper on "Renaissance Architecture in Malta," alluded, in opening, to the ignorance and erroneous impressions that generally prevailed about Malta among English people, and to the scant regard paid the island by architectural writers. Small as it was, Malta teemed with huge buildings, the product of centuries of activity and ambition. Churches, palaces, castles, possessed a character, unusual, striking, commanding, which rendered it to the lecturer's mind one of the most interesting spots in Europe. The island was composed of one solid block of almost perfect building stone. A house might be built from the stone cut out from its own cellars, a fortress from its own moats, a cathedral from its crypts. Stone was the one material employed in buildings, and was extensively used for other and many novel purposes. It might be described as a mason's earthly paradise. The inhabitants seemed to be born masons. No higher testimony could be given to the beauty and interest of the buildings than the enthusiasm they aroused in the cultivated and critical mind of the late Dean Church, who thought Valletta one of the most striking specimens of Architecture he had ever seen. Some interesting passages from the Dean's published letters were quoted, describing his first view of the capital, and of the general aspect of the interior of the island. Besides the ethnological and geological conditions,

THE POLITICO-RELIGIOUS INFLUENCE.

exerted by the Knights Hospitallers had been an important factor in the architectural development of Malta. Its architectural splendours were chiefly due to them. Relics of former rulers—the so-called Phœnician remains, fragments of Greek and Roman structures, various beautiful evidences of Sicilian-Norman influence—the lecturer passed over as belonging more to archaeology than to Architecture. His purpose was to deal with buildings still in regular occupation and use, belonging to a style most conveniently to be described as Renaissance. These were erected during the palmy days of the Knights of St. John, from the beginning of the sixteenth to the beginning of the eighteenth century. In explanation of how they came into existence, the lecturer briefly sketched the history of the order, and the various vicissitudes it passed through from its foundation in Jerusalem early in the eleventh century till its establishment in Malta. This happened in 1530, when the Maltese islands, at that time little better than desolate barren rocks, were ceded to the hospitallers in perpetual sovereignty. Fear of Turkish attacks compelled them to devote their first years to necessary fortifications, nearly all to be reconstructed after the great siege of 1565, when the Turks were finally repulsed.

THE CREATION OF VALLETTA,

a city which suddenly sprang up on a very unpromising site, never before occupied by buildings, was entirely the work of the Grand Master, La Vallette. The first stone was laid on March 28th, 1566, at the corner of St. John's bastion, La Vallette taking up his abode in a wooden hut on the spot, and directing operations day by day until his death in 1568. Del Monte, the new Grand Master, took equally great interest in the work, beginning his term by announcing that no one should enjoy his favour who did not promote the building of the city. At La Vallette's death nothing had been built except the outer fortifications. The first house, interesting as forming the nucleus of the present Governor's palace, was built by the Grand Master's nephew, Eustachio del Monte, in the centre of the high ground, on the place occupied by one of the Turkish batteries during the siege. In the next year,

1570, the designing of all the works, military, civil, and even ecclesiastical, was entrusted to Gerolamo Cassar, a very remarkable man, whom a document, dated May 18th, 1581, refers to as the "ordinary architect and engineer of the order" from 1565 to 1581. The most notable of his numerous works was the Church of St. John. In 1571 the headquarters of the order was transferred to the unfinished city. The lecturer gave a detailed description, illustrated by photographs, of St. John's, Valletta, and other buildings and

ARCHITECTURAL FEATURES OF NOTE IN THE CAPITAL

and other parts of Malta. The Great Hospital was one of the first buildings erected by the Knights, and always maintained on a lavish scale of expenditure. It is noteworthy as containing the largest ward ever built, 503ft. long by 35ft. wide, with a shorter ward of the same width leading out of it. Valletta alone has twenty-four churches, many of them splendid buildings, besides chapels and oratories. Outside Valletta, in the suburbs and country villages, there are a still greater number of churches, together with almost innumerable detached chapels. The latter are mostly octagonal in plan, and domed, with very graceful outlines. The larger village churches have usually two western towers and a dome at the crossing. The dimensions of two typical churches, both dating from the seventeenth century, are:—Zeitun Church, 153ft. long and 111ft. broad, including side chapels, with a nave 31ft. wide; and Zebbug Church, 165ft. by 122ft., and 32ft. across the nave. Città Vecchia, or Notabile, originally the chief city of the island, and the scene of St. Paul's sojourn there, is exceedingly picturesque.

ITS ROMANESQUE CATHEDRAL

was destroyed by an earthquake about 200 years ago, and the present building, of which Lorenzo Gafà, a Maltese, was architect, was consecrated in 1702. Noteworthy are the nave, upwards of 36ft. in span; the carved and inlaid choir-stalls, said to date from 1480; and the gorgeous altar ornaments and other treasures which escaped pillage by the French in 1798. The lecturer concluded with a few remarks on the characteristics of the Architecture of the Order. The term Palladian applied to it by Dean Church he considered inappropriate; it was more akin to early Florentine Renaissance than to any other type. With regard to a suggestion made by Mr. Ingress Bell in "An Architect's Notes in Malta," that Spanish architects in great numbers were employed upon the city of Valletta, which he thought accounted for the similarity between the Architecture of Malta and that of some of the Belgian towns, the lecturer, while granting the resemblance to Spanish work, particularly in ornament, could find no evidence of the actual presence of Spanish architects. Whencesoever derived, all the buildings of what might be called the heroic age of the order were exclusively Doric. Drawing attention to the photographs exhibited, the lecturer pointed out that being of a later date, perhaps they did not bring out the real Architecture so well, as in many cases plain buildings had been overlaid with decoration and ornament.—Colonel Prendergast, moving a vote of thanks to the lecturer, observed that what he had truly said, was that Malta to the general British public was a closed book. Many of them—and he was one—could not lay any claim to a knowledge of its great architectural productions. The material alone which the builders had at their disposal, was a great joy to anybody interested in works with which they were concerned. It was most beautiful material, and they could almost manipulate it like chalk. It lent itself to decoration, not merely of the soft kind, for it hardened with exposure, and became most charming decorative material to deal with. That in itself was a great recommendation. The points that had been brought before them seemed to be of so much interest, because it was almost unique to find such buildings erected, so to speak, for an employer, for the Grand Masters

of St. John's were very great personages, and had funds at their disposal to a large extent, and, as they saw, they had used them pretty freely. What perplexed the speaker was Mr. Flower's criticism of

THE CHURCH OF ST. JOHN.

He had no lengthy knowledge of it, but he had been in it, and thought there was something exceedingly plain about it. It was almost as flat a roofed building as they could have. It was out of proportion; the height was altogether wrong, but it had been so skilfully dealt with that it would be hard to say anything against it. Whenever discussing these things, people would not recollect the reasons for which they were done. Buildings were not erected then for the reasons they were now—because somebody wanted a pretty church. They built them for the sake of having a church, and the reason for the Church of St. John was to have half-a-dozen lodges and the Order, whose business it was to do the work in their different countries. This church was merely a series of chapels belonging to different countries, and the architect who was given the work, being a local man, had not very far to go for a sample. There was the small church close by, which he thought was a beautiful thing, but it was

AN EARLY RENAISSANCE BUILDING

in its way, and the architect simply carried out his work with that idea, and made each of his chapels, more or less, so as to have some relation to it, even though it was so very obscure. It was before the time when they had the notion to reproduce great Roman buildings or something of that kind, and he had got rid of the heavier appearance. He thought such an architect deserved enormous credit.—The Rev. W. K. R. Bedford, who seconded, said he knew Malta perhaps as much as any Englishman. With regard to the roof of St. John's Church, of course it was original. A great deal of the church was much more modern. Most of the ornamentation dated from 1660 or thereabouts, but the roof was part of the original plan. Close by, there was the little church of about 1530, and by the photo they would see there was in it very much more decided Gothic and pointed arch feeling. To some extent it was done away with in the Church of St. John, but still the family likeness was preserved between the two churches. Therefore they might take it as the first building of the Knights in the island. He would like to call attention to a very important fact that occurred subsequent to the first erection at Valletta. Though the Italian influence prevailed to a great extent, there were two great waves of reconstruction which passed over the fortunes of the Order. The Spanish Grand Master, and a great many of them that came in succession, brought in Spanish ways, and they found Spanish balconies fixed to Italian buildings. There were one or two very interesting specimens on the hotels. The last Grand Master ornamented some very handsome buildings, but more in the French style, and so they had the very nondescript styles one with another, expressing in artistic degree the buildings in order. He was sorry to say that as the leases of the fine old buildings—not those employed as Government offices—expired, they were being turned into flats, and that the era of the jerry builder had set in in Malta. He hoped all the influence that English architects could bring to bear on the subject would be exercised as much as possible.—Colonel Hogg, Mr. T. Blashill, and the President also took part in the discussion.

The French Chamber has voted to hand over the Pavilion de Marsan to the Union Centrale des Arts Décoratifs for the purposes of a Museum of the D corative Arts akin to ours at South Kensington.

The much-needed re-construction of the Llanfyllin Town Hall, which was to have been carried out as a memorial of the Queen's Diamond Jubilee, has had to be abandoned by the Town Council, in consequence of the opposition of the owners of adjoining property.

* Extracts from a paper read before the Royal Institute of British Architects on Monday night.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
November 17th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Athens Archaeological Society has decided to resume the works for the restoration and strengthening of the ruins of the Parthenon. The English company which is working the marble quarries at Pentelicos has offered, for the purpose, marble blocks of excellent quality and large size. Fears are expressed in certain newspapers regarding the solidity of the Olympian Museum, where the famous statue of Hermes, by Praxiteles, is deposited. This anxiety is, however, quite groundless.

IN a recent address on "Art," Sir Wyke Bayliss, President of the Royal Society of British Artists, asked what was Art but the science of beauty, and what was sanitation but the science of health? Could they not make their great cities more habitable, more lovely? That was the question for consideration, and he would submit six propositions. First, that the progress of Art in our country, and the further development of some of its characteristics, have been arrested, and are now seriously impeded by the foul condition of the atmosphere of our great cities; secondly, that the constructive arrangements and appliances necessary to avoid that evil are not irreconcilable with the laws of beauty; thirdly, that the law of beauty, as well as the law of health, is that things are right only in their right places; fourthly, that if we do nothing better with works of Art than to smoke them black like fitches of bacon, our artists would certainly not fulfil that law of supply and demand and give us works of Art suitable for that purpose; fifthly, that any great scheme for the future of national and historic Art is practically hopeless so long as this state of things continues; and, finally, he put it to them that to find a remedy for those evils they must not look to the artist, for the artist looked to them to see justice done. Having referred to the chief forms of Art, he suggested that the nation through its representatives should choose the event, and the artists should choose the man who should paint one picture every year of the chief events of the year, or the most noble deed done, or the highest good achieved. That would, indeed, be true historic Art—the marriage of Art and history.

A LICH GATE has just been erected at Hooton Pagnell Churchyard. Although a pretty feature in many counties in England, lych gates are, at best, rare in Yorkshire, so far as we recollect. We only remember, indeed, two old ones in the county—one at Durnsal-in-Wharfedale, and the other at Birstal. There are, however, more or less satisfactory modern examples to be seen at Lythe, near Lord Normanby's seat (Mulgrave Castle), as well as at Giggleswick, Skelbrook, Acomb, Rothwell, Horbury, Thornhill, and at Airmin Church, near Goole. Though an extensive literature has gathered around the church and its customs, the references to lych gates, even in standard works upon Ecclesiastical Architecture, are meagre in the extreme. It is not at all

clear when lych gates, picturesque features of rural churchyards as they are, first originated. Parker, in his "Glossary of Architectural Terms" (1869), gives an illustration of one at Parsington, in Oxfordshire, which is probably of fifteenth century workmanship. They are sometimes built entirely of stone, but more usually they are dwarf walls of that material, upon which rests the structure itself framed in sturdy "hearts of oak." In Cornwall, "down-a-long" in the south-west, there is often a large block of the grey granite of the district in the midst of the lych gate, known as the "lich stone."

ARCHITECTS have lately been discussing the advantages to be derived in the winter by double glazing our windows, to prevent, during severe cold, the rapid cooling of the air inside the apartment, and, consequently, the unique extraction of warmth from the bodies of the occupants. This proposal is "made in Germany," and such windows are in vogue throughout Russia and in Canada. With an air space of about half-an-inch between the two sheets of glass, greater comfort, if not increased health, will, it is said, accrue to the inmates of houses fitted with such windows. All who sit near the present single-sheeted windows in cold weather must have experienced the sensation of draughts caused by the chilling of the currents of air, while it is also claimed that the double glazing deadens the noise of street traffic.

THE Asylums Committee of the London County Council will shortly ask the Council to sanction a large expenditure for the provision of temporary buildings, for the accommodation of female lunatic patients on the Horton Manor Estate, Epsom. It is on this estate that the Council is about to erect a permanent asylum, but, as this cannot be finished before the end of the year 1900, it has become necessary, owing to the inadequacy of the vacancies occurring at the London asylums to meet the demands for recent cases of lunacy, to immediately provide further accommodation. The Bexley Heath Asylum, which is now being constructed, will not be finished until the beginning of 1899. The primary cost of the proposed buildings, which are designed to be occupied for 15 years and to accommodate 700 female patients, is £147,000.

APPROPOS the remarks made at a recent meeting of the Architectural Association, with respect to panic precautions in churches, the following case is specially interesting. During a recent service at Marylebone Presbyterian Church a loud explosion occurred, followed by dense clouds of vapour, which rose from the centre of the building. The church, which has accommodation for 1500 persons, was at the time well filled, and a scene of great excitement ensued. The congregation rose *en masse*, and there was a rush to the exits, but at this particular stage of the service the doors were closed, and difficulty was experienced in opening some of them in time to avert a pressure of the people. This considerably added to the panic. It was ascertained that the explosion occurred in one of the pipes in connection with the hot water heating apparatus situated beneath the floor of the church. Despite the efforts of the Rev. George Jackson and officials to reassure the people a number left the building, and after a brief interval the service was continued to a much decreased congregation. As far as is known no one was injured in the church, but in the stampede from one of the galleries a person was thrown down in the crush and somewhat hurt. The damage was confined to the lecture hall beneath the church.

HOLBORN is now, and will be for some time to come, in a great state of change. We have chronicled the demolition of the Old Bell, and the Black Swan Distillery, and now Furnival's Inn is about to disappear. It is many years since it was an Inn of Court, but a reminiscence of its connection with Lincoln's Inn may yet be seen carved on the keystone of the archway leading from Holborn, in the

form of a shield bearing the arms of the Inn. Beneath are the initials T.N.G.C., with the date 1818, of which the explanation is that Nathaniel George Carter was Treasurer of the Inn during that year. When Furnival's Inn is rebuilt as residential flats, a literary landmark will be swept away, for Dickens had chambers at No. 15, until 1837. A medallion has been placed on the wall to record the fact.

"As an architect I have not been able to avoid noticing the alteration during the last few years in the way in which the workmen proceed in carrying out their duties, and I will," writes "A London Architect" to the Times, in referring to the engineers' strike, "as briefly as possible note some of the facts which have presented themselves to me:—1. There is a clearly-organised and, indeed, compulsory arrangement that the men are to consume the greatest possible amount of time in producing the smallest possible amount of work. 2. And there is an intolerable amount of interference on the part of the men as to the manner in which a builder is to conduct his business. As to 1. Bricklayers who have been many years in the employ of a certain contractor, and perfectly willing to do an honest day's work, have been compelled to restrict themselves to laying not more than 450 bricks per day, when they could, in certain work, easily lay 1000, and they dare not disobey the order. The men generally will stand in groups idling away their time, and will boldly grin at any one who, by an understood look, expresses surprise at their audacity.

"This," "A London Architect" continues, "is particularly conspicuous in the men employed by the Works Department of the London County Council and by the workmen employed by vestries and electric lighting bodies. There are some kinds of work where "elbow-grease" is required. I have been shown men who appeared to be doing real work, but who were not applying that "elbow-grease" which was necessary for a paying result and so on. Then as to 2. I had to pave a large building with granolithic paving. When about half of it had been done by men thoroughly competent to lay it to the proper falls and to arrange and set out the channels for water, the plasterers took it into their heads that they were the proper men to do this work, and told the builder that unless he allowed them to do it they would all leave the job. He had to comply, and the result is that the work cost him more money and is inefficiently performed both as to falls and finish. A bricklayer was building a manhole to a drain the other day, and was finishing the inside with a coat of Portland cement. Again the plasterers waited upon the foreman and told him that unless they were allowed to do this little piece of Portland cement work they would all leave the job, and again the builder had to succumb. The constant interruptions on works because unionists will not work with non-unionists are well understood by all, and I myself have known of the losses incurred by builders because of the tyranny which one set of workmen exercise over another."

IN the last British Consular report from Kiu-kiang reference is made to the once famous pottery of Kinté, in the Kiang-si Province, which has of late fallen into decay. This celebrated factory first became famous about the commencement of the Sung dynasty, in the tenth or eleventh century of our era, and down to the present time has furnished four-fifths of the ware of China. It outstripped its great rival Poshnashien, in Shan-tung, which furnished in ancient times the beautiful porcelain that went overland through the Gobi desert to the Bactrian cities and westward to Persia. Even now some of the best porcelain used in the Emperor's palaces is from Poshnashien. The first era of great prosperity in the history of the Kinté pottery was about the end of the eleventh century, and the most famous pieces of porcelain, in the eyes of Chinese collectors, come from this period, and are known as Sung Yao, or the work of the Sung kilns, Sung being the then reigning dynasty. The jars, flower pots, vases, &c., produced at this

time fetch very high prices. There are some vases and statues of Buddhist saints now in the palaces in Peking and Eho Park which are valued at more than their weight in gold owing to the rarity of this class of ware. The second period of fame of Kinté was during the Ming Dynasty, and especially towards the end of the fifteenth century. The cloisonné ware of this period was unequalled by any produced before. The few specimens in the Peking palaces are carefully stored and taken out only when the reigning sovereign wishes to admire them or show them to the Court, after which they are again carefully wrapped up and stored away. The third era of the glory of Kinté was during the great reign of Kanghi (1662-1722), after which it declined, and, though attempts were made in the first half of the present century to arouse the energies of the makers and the old glory of the factories, they were not successful, and now the products are coarse and mediocre, except a few pieces sent once every three years by the Governor of Kiang-si to the Emperor. Agents are specially appointed to superintend the making of these. Sometimes also wealthy Chinese order special ware from Kinté, and the work on this is frequently very fine still. The flood of cheap Japanese ware, usually in imitation of Chinese, which is entering China has affected the Chinese potter. "The decadence which has been the curse of this Empire generally has not spared the Art which formerly gained for China a world-wide reputation. It is as if the well-known ceramic Art establishments of Dresden and Sèvres had descended to supplying the world with toilet sets and ordinary household utensils, useful and cheap, perhaps, but devoid of artistic merit. Unfortunately, this decadence not only affects China from an æsthetic point of view, but has a ruinous effect upon the material prosperity of the district, for the Kinté potteries now afford employment to but a tithe of the workmen who were engaged there fifty years ago. There are immense possibilities for the future as there have been for the past; and it only requires some energy and determination to arrest the downward course and restore the Kinté potteries to the honourable position and state of prosperity which they held unchallenged in days of yore."

At a recent meeting of the London County Council, held at Spring Gardens, on the report of the Improvements Committee, which recommended "that £16,620 should be contributed by the Council for the widening of Ludgate Hill, between St. Martin's Court and Pilgrim Street," Mr. C. Harrison, M.P., proposed an amendment to refer the matter back to the committee, but after discussion, the amendment was rejected by 57 votes to 50, and the recommendation was agreed to, with the addition of words to the effect that the contribution should only be paid on an admission in writing from the City that it should be taken as a final settlement of all outstanding claims for improvements from the City of the Council. The Parks Committee presented a report relative to the contemplated closing of a small open space—Russell Court Playground—situated between Catherine Street and Drury Lane, which, it is believed, is the site described in Dickens's "Beak House." The Duke of Bedford contemplates carrying out some improvements in the district, which includes the formation of a new street across the playground. The Committee stated that it regretted the loss of this children's playground, which was much used, and of great service, but in the circumstances there was nothing left for the Council to do but to return the ground to the charge of the owner, the rector of St. Mary-le-Strand. It submitted a recommendation to that effect, but on the suggestion of Mr. Beachcroft, the chairman of the Committee, took the report back for further consideration.

MR. MARK H. JUDGE, of 7, Pall Mall, wrote a few days ago:—I am pleased to say that very considerable interest has been manifested in the case of "Clarke v. London," in which Mr. Commissioner Kerr ruled that a builder was bound to carry

out the verbal orders of a sanitary inspector without reference to the owner, who, in his turn, was liable for the cost of the work he had not ordered. The case has naturally been commented upon by our leading medical and architectural journals, and the response to the invitation in my letter has been such that legal advice has been obtained, with results which will shortly be laid before a meeting of those interested. I shall be pleased to forward an invitation to attend the meeting to all who are willing to join in a protest against such an arbitrary administration of the Public Health Acts. We all know that too much attention cannot be given to sanitation—in other words, to cleanliness; but the laws of health as administered by a local sanitary authority, even with the assistance of a department of the Imperial Government, are not always interpreted with that correctness that is necessary to ensure sanitary conditions, and there is a growing opinion that it is possible a careful inquiry into facts connected with the administration of the Public Health Acts may lead to the conclusion that the powers of our local sanitary authorities are greater than is desirable in the interest of the health of the community, even when legitimately exercised. However opinion may differ as to this, it surely must be admitted by all those who give the matter the least consideration, that, if we tolerate the transfer of these powers to a salaried inspector, the privacy of the Englishman's home will soon become a thing of the past. Those who are prepared to accept such a state of things will perhaps not feel it to be any injustice to be made liable for any orders the sanitary inspector may presume to give. I am persuaded that, whatever may be the legal powers of sanitary inspectors, experience has already shown that in some respects the Public Health Acts need amendment, and proposals to that end will be submitted to the coming meeting to consider Mr. Commissioner Kerr's strange ruling in the case of "Clarke v. London."

A DRINKING fountain erected in the wall of Drury Lane Theatre, on the north side of the main entrance, as a memorial to the late Sir Augustus Harris, was recently unveiled. The fountain, which was designed by Mr. S. R. J. Smith, is built of granite and Mansfield stone, and has bronze enrichments. The base is of polished Norwegian granite and Sicilian marble. The water is delivered from a lion's head, and above the basin is a panel illustrative of dramatic Art, having figures carrying masks. Above this panel rises a classic pediment supported by two polished granite columns having drums at the base and musical instruments in bronze carved on them. Under the pediment, which has tragedy and comedy masks, and a central lyre, is a niche containing a bust of the late Sir Augustus Harris, beautifully modelled and worked in bronze by Mr. T. Brock, R.A., and having the name "Augustus Harris" inscribed underneath on a bronze panel.

MR. MALCOLM PATERSON, M.I.C.E., has prepared a report on the state of the service tank on Red Hill, Castleford, Yorks, which is almost without a precedent in this country. A huge fissure extends across the entire surface of the bottom, 2ft. to 5ft. in width, and about 28ft. deep. This was laid bare some months ago, after the sudden disappearance of the contents of the tank, when the concrete bottom was partly removed. The reservoir site is on the Permian formation, the strata consisting of magnesian limestone, lying in a compact sand-bed almost indurated to rock. This rock yields the best moulder's sand, and has been excavated by mining for many generations in long galleries with supports and adit entrances. The workings extend for miles, and have been proved to approach within a few feet of the reservoir, and probably extend below it on the north side. By exposure to air and the infiltration of water they have gradually crumbled and fissured, causing leakages from the tank, which in their turn have accelerated the waste and the subsidence, and have caused the ruin of the tank. An inspection of these workings was necessary, though

attended by danger from loose rock in the roof. In Mr. Paterson's report a previous proposal to buttress the north side by a retaining wall, arched on plan, is set aside as a futile and hazardous operation, instead of this, he proposes to construct a new reservoir, holding 1,250,000 gallons, on a new site on adjacent ground to the west of the present tank which appears to be the only suitable site not honey-combed by the sand-workings; but even here he considers that five or six borings, not less than 50ft. deep, indispensable to prove the ground. The cost of the new reservoir, if open, is estimated at £3250, or if covered, at £4700.

MESSRS. TOOTH, in the Haymarket, keep to their accustomed lines, and their winter exhibition is one of cabinet and other works by such English painters as Messrs. Henry Woods, Leader, Seymour Lucas, David Farquharson, Blair Leighton, and James Orrock; and by MM. Munkacsy, Domingo, Auguste Bonheur, Jacquet, Deutsch, &c. Many of these are, of course, extremely accomplished. Nothing could, in its way, be better than Mr. Seymour Lucas's seventeenth century figure, "Thinking it Out"—very brilliantly painted, in his buff jerkin and scarlet cloak; or than the little Venetian scenes of Mr. Woods and Mr. Logsdail; or than the beautiful early work of the lamented Henry Moore, "An Estuary," with its transparent water and threatening sky. Of the foreign pictures, a conspicuous place is claimed by Mme. Diéterlé (Van Marcke's daughter) for her "Cattle on the Coast"—very clever and competent, but hardly interesting because representing rather what the artist has been taught than what she has personally observed and felt. A better painter is the neglected Auguste Bonheur, whose cows are really almost as brilliant as Troyon's, though he has a much duller feeling for landscape. The work of Professor Scheurenberg is new to England; though the painter has a high reputation in Berlin; his picture of "The Sea's Delight" is very English in technique, and is not without charm.

THE decision of the President of the Royal Academy and the Director of the Guildhall Art Gallery as to the Seller pictures will be awaited with considerable interest. There is a natural inclination to criticise generously a generous gift. But we are, even already, suffering from the presence in several of our collections of specimens of Art of which the country has ceased to be proud. In France there are facilities for relegating to local museums canvases which on appeal are not considered to merit their original selection or acceptance. The birthplace of the painter is considered in these ultimate disposals, or, if the subject is "historical," the incident recorded helps to decide the final locality of the picture. We have not these opportunities, and therefore we should look more jealously at what we accept. If this be true of London generally, of the National Gallery or the Tate Gallery, it is specially true where wall space is so limited and so precious as in a gallery in the heart of the city of London.

THE royal parish church of St. Martin's, Trafalgar Square, has just been formally opened after elaborate redecoration. Electric light has been introduced, the interior has been repainted and gilded, the old oak pews are less obtrusive than they were, and in a hundred ways the church presents a more attractive appearance than it ever did before. The scheme of decoration has cost between £3000 and £4000.

A LARGE amount of damage has been done during the past few days in the Quarry Bank district. Gas and water mains are being frequently broken, and gangs of men are engaged continually in restoring the supply. Houses are being shattered which at first escaped, and part of High Street, Quarry Bank, shows now the same amount of wreckage as lateral streets have heretofore had a monopoly of. Some people continue to use part of their ruined premises, though at peril to life and limb.

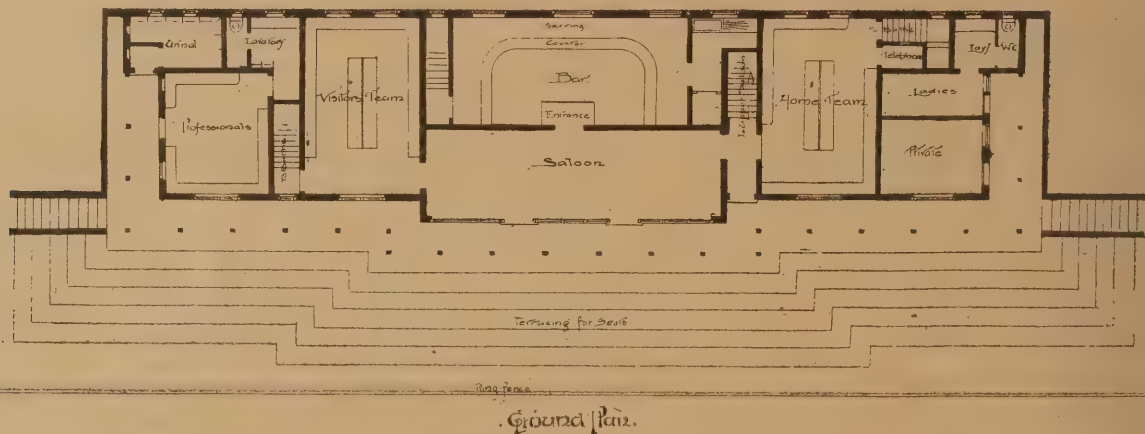
THE most magnificent hotel in the world has, within the past few days, been opened in New York. This is the Astoria, which for the past two years has been in the course of construction on the south-west corner of Fifth Avenue and Thirty-fourth Street. It is seventeen stories high, and stands on a plot of ground 125ft. by 400ft. The approach to the main entrance is by a drive-way through a covered courtyard walled with plate glass and supported by pillars of Siena marble, while there are a dozen other entrances. The corridor on which the great doors open is 400ft. long, and is finished in semi-Empire style, having walls of Siena marble. The ball-room is 100ft. square, and has two galleries 40ft. from the floor above, which is a beautiful frescoed dome ceiling. The galleries are divided into forty-three boxes, which are semi-circular in front, while on the north and south ends are balconies. The Astor gallery on the first floor is one of the great apartments of the house, a room 102ft. long by 40ft. broad, which is sumptuously decorated. Among the other rooms are the "green room," which many of those who have seen it consider the most beautiful room in the hotel; the "myrtle room," so called from its decorations, which is intended to be used for weddings, and the "Colonial room"; while there are billiard rooms for ladies, and drawing-rooms especially appropriated for their use. A decidedly novel feature is the arrangement of the ground floor, where, by the use of glass panels, an uninterrupted view of the whole floor can be

himself—here is a task for all that a man has of fortitude and delicacy."

At last week's meeting of the London County Council, a report of the Fire Brigade Committee gave rise to a discussion of considerable interest in its bearing upon the work and accounts of the Works Department. The committee had advertised for tenders for the work of altering and enlarging two fire stations in consequence of the manager of the Works Department having rejected the work on the ground that the architect's estimate was too low. Four tenders had been sent in, the lowest of which was nearly £800 in excess of the architect's estimate. After due consideration, the committee had decided not to recommend the acceptance of any of the tenders, but to modify the plans.—Mr. McKinnon Wood moved an amendment to refer the report back for fuller information, which should include the causes that had resulted in the lowest tender exceeding the estimate by so large a sum. He said complaint had been made against the Works Committee; that in the past it had quarrelled with the estimates. The present case, he thought, to some extent justified its action. The manager in this instance said the estimate was too low, and now the contractors said the same.—Mr. E. White said his complaint against the Works Committee had been that it had accepted work at too low a price, and consequently lost money. He also complained that contractors were bound by vexatious conditions, from

which it was an essential feature in church internal arrangement that the altar should be placed in such a position that all the worshippers could have an opportunity of seeing it. That cardinal point had been embodied in the plan he proposed. It was in fact the only plan that would carry out the suggestion. The only objection raised some time ago was that the altar should be taken from its present position, and placed in the west end of the church. The Bishop said that the west end position for the altar was only an Anglican or English speciality. The Church of St. Werburgh's, at Derby, disregarded orientation, and they could do so at Heage. There was no radical objection to placing the altar at the west end. He next went on to refer to the alternative plan, which retained the altar in its present position, and the pulpit was placed at an angle in the edifice. Instead of all the worshippers being able to see it, some would be placed quite out of sight of the altar. This was a great objection to the plan, that had come as a sort of inspiration.—The plan recommended by the vicar was adopted.

MR. STANLEY LITTLE, in the course of a recent article, disputes the assumption too hastily made that, compared with the Italian, Flemish, Spanish, and Early English schools, modern painters have no individuality, although taking the whole body of living painters and contrasting them with the Italians of the sixteenth or the Dutch of the



HULL CRICKET CLUB PAVILION. BY PERCY T. RUNTON.

obtained. The garden court is designed after the Italian Renaissance in richly-carved stone, and runs up through two stories, so that two galleries are admitted into it. By breaking down the wall between the next most liberally-appointed hotel in New York, the Waldorf, which adjoins it, and replacing the masonry with plate-glass doors, a view has been made through the two hotels extending from Thirty-fourth Street to Thirty-third Street. The Astoria belongs to Mr. John Jacob Astor.

SAN FRANCISCO is the first city in the United States to unveil a memorial to Robert Louis Stevenson. It is a fountain, and stands in the old Plaza, an open space which, in the palmy days of gold fever, used to be the nucleus of the bustling life of that pioneer community. The fountain is of plain but tasteful design. The main granite shaft is 13ft. high, and on top, executed in bronze, is a sixteenth century ship under full sail, emblematical of Stevenson's wandering and romantic tastes. The inscription, incised in plain lettering on the granite, consists of a passage from the author's Christmas sermon as follows:—"To be honest, to be kind, to earn a little and spend a little less; to make, upon the whole, a family happier by his presence; to renounce when that shall be necessary, and not be embittered; to keep a few friends, but these without capitulation—above all, on the same grim conditions, to keep friends with

which the Works Committee was free. The reason that the contractors were so high was that the contractors declined to place themselves under these conditions unless they had some security from monetary loss.—Mr. J. Burns, M. P., said the reason the Works Committee took work at low prices was that it was urged—he might almost say forced—to do so by Mr. White and his Moderate friends. In this case the Works Department offered to undertake the work for £4800.—In the result the amendment was agreed to.—On the motion of Mr. Goulding, M.P., the Council expressed the opinion that it was desirable that the embankment on the Thames should be continued from the Victoria Tower Garden to Lambeth Bridge, and referred it to the Improvements Committee to report generally upon the subject, such report also to deal with the question of widening Millbank Street, and the utilisation of any surplus land which might remain after the carrying out of the improvement.

SOME difficulty exists owing to there being two schemes for the restoration of Heage Church, and a vestry meeting was recently held to consider the subject. The vicar said the plan of the Bishop ought to be accepted, because it was the plan of the head of the diocese, and entitled to very great respect. Everyone he had spoken to about the plan of the Bishop approved of it. All church archi-

seventeenth century, he allows that the moderns are at a disadvantage. When posterity comes to sum up the Art achievement of the Victorian era it will, he holds, be found that a rich legacy has been left, which coming generations will not allow to die.

THE third of the twenty-four decorative panels with which it is intended to adorn the walls of the ambulatory of the Royal Exchange was unveiled within the past few days. The painting is by Mr. J. S. Solomon, A.R.A., and represents the visit paid by Charles I. to the Guildhall to demand the giving up of the five members of Parliament whose arrest was resisted by the House of Commons.

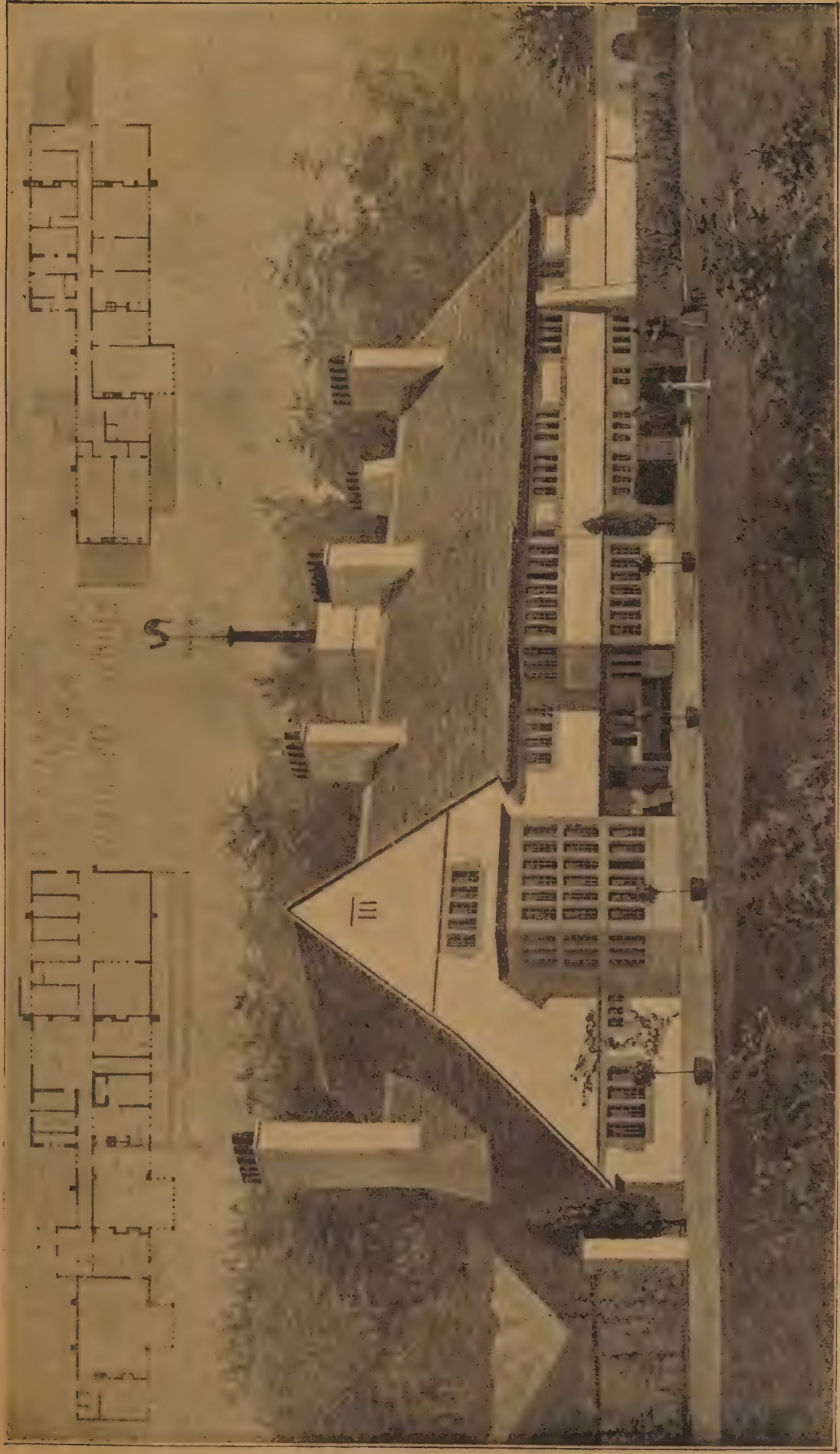
THE ancient hostelry of "Ye Olde Robin Hood," Derby, has recently been thoroughly restored. It is one of the few remaining old inns recalling the days of our fathers, having a spacious courtyard with stabling around, and where on market days may still be seen rubicund specimens of the British farmer. The bar has been entirely reconstructed, the chief material being bamboo, the effect being novel and pleasing. Tradition says this old house was a favourite haunt of the famous freebooter whose name it bears. The contractor for the alterations was Mr. George Durant, Grange Street, Derby.

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THE PAVILION
HULL RICKET CLUB
COMPANY'S NEW SITE
PERCY H. RUSSELL

1897



HOUSE FOR JULIAN STURGIS. DESIGNED BY C. F. A. VOYSEY.

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SOME NEW BUILDING MATERIALS*

By H. D. SEARLES-WOOD, F.R.I.B.A.

THE two materials that I propose to deal with are asbestic and petrifite. I do not pretend to have any experience in the use of either, but they having come under my notice, and striking me as of very great importance, I thought that the members of this Association might like to have their attention called to them. Asbestic comes to this country from Lower Canada, and is a name given to a by-product from the manufacture of asbestos from serpentine. After the fine white fibrous asbestos has been extracted by machinery, this sand is left, and it is the various uses to which this can be put; that I propose to call your attention. Large quantities of this material have recently been used in the United States and Canada in the form of plaster. It is claimed for plaster made with ordinary lime and asbestic (the proportion recommended being 3cwt. of lime to 1 ton of asbestic) that it is absolutely fireproof, and being fibrous and possessing very great elasticity, there is no cracking, chipping, or crumbling away, and nails driven into it enter in the same way as into a pine board, and can be easily withdrawn. This plaster is also a perfect non-conductor of heat, and rooms plastered with this substance keep an even temperature much longer than rooms plastered with other materials. It is stated that this plaster, being a perfect non-conductor of sound, has a curious effect on the room or hall where it is used, making them much easier for singing or speaking in.

FOR THE PROTECTION OF METALS,

this substance has a great future. An elaborate series of experiments were carried out by General Povey Smith, when he found that asbestic not only protected the metal against fire, but at the same time preserved it from any corrosion. The covering properties of the asbestic plaster are about 40 per cent. more than those of ordinary plaster, and it is 40 per cent. lighter to handle; the mixing and application are so much easier that there is a saving of 25 per cent. in actual labour. The directions for use are given as under:—For rough coat: Slack about 3cwt. of lime, and while liquid run it through a sieve into a box large enough to hold one ton of asbestic. Mix thoroughly, adding the requisite amount of water. After the lime and asbestic are thoroughly mixed, the plaster should be allowed to stand at least twenty-four hours before being used. For finishing coat: Mix two parts of lime to one of asbestic finish, and gauge with plaster of Paris. No hair or sand is required. The price of the asbestic, per ton of 2,240lbs., is £3; asbestic finish, £5. The sole agents for London are Messrs. Witty and Wyatt, of 88, Leadenhall Street, E.C., where numerous samples can be seen. The foregoing information I have obtained from the trade circular. The plaster takes about three weeks in setting to get thoroughly hard, and it gradually toughens after that time. The asbestic is now being made up in slabs about $\frac{1}{2}$ in. thick; these can be

WORKED AS EASILY AS WOOD,

and as non-conductors of heat and cold they can be utilised for walls, ceilings, cornices, mosaics, &c., and can be used out of doors and coloured as required. In hot climates it will resist the attacks of the termite, or white ant. A bungalow constructed with an outer and inner skin of this material, and a confined air space between, would have a low temperature in the hottest weather. It can be moulded to any shape and fixed in position by nails, screws, or cement. This material is far more suitable for buildings in new countries, such as Africa or West Australia, than corrugated iron or Hessian (that is, canvas and framing that does duty for walling in many of the new townships in those countries). A friend of mine, who has just returned from West Australia, particularly complained of the discomfort of the Hessian built hotels. Picture to yourselves an hotel constructed entirely of

canvas, in which there were five bars, and all of them filled with miners whose panacea for every ill is whisky. The non-conducting property of asbestic plaster would in this building be of great value. In America and Canada asbestic roofing is largely used; it forms a light roofing material that is absolutely incombustible, and, being a non-conductor, keeps the building of an even temperature. For hot countries glazed asbestic tiles are being made for roofing purposes. In the manufacture of paper asbestic is being largely used. Paper 130in. in width is being produced in one factory for building purposes. Asbestic has been recently selected by the London County Council as one of the fireproof materials that may be used in the alterations at Olympia. Talking over the subject of this paper with Mr. Drew, when we were at Furness Abbey, I asked him what new material in his opinion was most wanted. He replied:

"AN ARTIFICIAL SLATE."

By the kindness of the proprietors of the two materials I am describing, I have made some artificial slates which I think will meet this want. The samples were only made yesterday, and so are not yet fit for experiments, and the surface is smoother than I intended; but I think that they show that a good roof covering can be made in this way. They would be light, non-combustible, and non-conducting. These samples are self-coloured, and are a dark grey, but they could be made to any shade of colour.—Petrifite is a white cement which appears to have the power of binding together almost any material that can be thought of. The principle of the invention was discovered in 1891, but it was not until some years later that a cheap and practical method of making petrifite was worked out and patented, and even now it is not practically on the market, though I am informed that it is hoped it may be by the 15th of this month. During the lapse of time from its discovery a large series of exhaustive and interesting experiments have been made, and some wonderful results obtained. Messrs. David Kirkaldy and Son have reported on the following experiments:

Result.

25 per cent. Portland cement and clean pit mud, petrifite and ordinary sea sand.	Petrifite eleven times the strength.
Petrifite and common earth.	Nearly four times the strength.
Natural Bath stone: 10 per cent. petrifite and ordinary sea sand.	Nearly twice as strong.
Natural Portland stone: 25 per cent. petrifite and ordinary sea sand.	Stronger when only thirty days old.
Marble Carrara blocks: 50 per cent. dust from the same with petrifite.	8 per cent. stronger.
Tensile strength: 25 per cent. Portland cement and clean pit mud. 25 per cent. petrifite and clean pit mud.	Over five times as strong.
Tensile strength: 25 per cent. petrifite, sea mud, and powdered chalk.	Over seven times as strong.
Porosity: 25 per cent. Portland cement and clean pit mud. 25 per cent. petrifite cement and clean sea sand.	Nine times less porous.

In a further report made by Messrs. Kirkaldy in May, 1897, as to the effect of immersion in water, it was found to reduce the ordinary petrifite 25 per cent. in strength, as against 10 per cent. in natural Portland stone and 20 per cent. natural Bath stone, but in samples made with hydraulic petrifite, which is ordinary petrifite mixed with from 5 to 10 per cent. of inexpensive materials, the diminution in strength is slight. As regards hardness of surface and hardness internally, there is hardly any appreciable difference between 2 to 1 Portland and 6 to 1 or 9 to 1 petrifite. A backing of 6 to 1 petrifite, faced with three parts plaster of Paris to one of petrifite, yields a hard and smooth surface very suitable for walls. The tests made to ascertain the relative adherence of petrifite mortar show that

6 of sand to 1 of petrifite adheres as well to the face of rough bricks as good Portland cement mortar mixed 3 to 1. In the case of bricks with rather smooth surfaces, petrifite mortar gave nearly four times the adhesive strength. Petrifite mortar mixed 3 to 1 with smooth bricks had ten times the adhesive strength of the same proportion of Portland cement mortar. Another feature of petrifite is that it adheres to wood. Messrs. Kirkaldy summarise their two reports by stating that petrifite has the following valuable properties:—1. Its combinations have great crushing and tensile strength and adhesive qualities. 2. It will solidify unclean materials, the presence of which, even in small quantities, would be fatal to the setting of Portland and other cements, and bind together into useful blocks many substances which cannot now be utilised. 3. Dirty or unwashed materials can be used, which is not the case with other cements. 4. Its compounds do not sweat or effloresce, thus enabling sea sand to be used. 5. It will adhere perfectly to wood or iron. 6. As ordinarily used it solidifies slowly, so that work need not be hurried; it then dries and

SETS HARD WITH GREAT RAPIDITY.

7. It is so powerful that a much smaller quantity suffices, considerably reducing the cost of freight and transport. 8. After setting has commenced, it can be still used again, as but little deterioration takes place, unlike other cements, when small quantities have to be mixed for immediate use. 9. It does not become inert after exposure to a damp atmosphere. 10. It may be used when quite freshly made, without fear of failure. Messrs. Slunger and Blount's report states that petrifite, when mixed with a suitable aggregate, e.g., sand, expands on setting to about the same small extent as Portland cement. This expansion is not likely to be perceptible in ordinary use. Mr. G. F. Harris, stone and quarry expert, summarises his very interesting report on petrifite sandstone, that the Petrifite Company can deliver a first-class dressed building stone in London at a price under half that of dressed natural building stone, and of a superior quality. As a plaster, petrifite has been reported on by Mr. Marson. Its advantages over Portland cement are that it can be used with sea sand without risk of efflorescence, and the surface is harder and closer than when Thames mud is used. Thus the labour of screening and washing the mud is saved.

PETRIFITE GRIPS THE WHOLE SURFACE,

both smooth and rough places, and being "fatter" than Portland cement, can be laid more easily, and does better. Compared with Keene's cement, it has the advantage of being non-porous, much harder when set, and can be worked much more quickly. If petrifite compounds are painted whilst wet, the paint sinks into the soft material. It takes no longer to dry than ordinary paint put on woodwork. In twenty-four hours a room can be finished and ready for occupation. With colouring matter, petrifite and water is a first-class substitute for ordinary distemper. In moulding, all difficulty of allowance for contraction is avoided, and for making the moulds for casting repeats, petrifite mixed with plaster of Paris or sand is a perfect material. Plaster slabs made of petrifite are much stronger than the ordinary slabs, which are going out of use, as they are not strong enough, although of great convenience. As a cement for iron, an ordinary galvanised iron building can be covered with petrifite plaster, and it will adhere perfectly. Petrifite has one special quality—viz., that the water which is added does not evaporate but enters into a chemical union with the cement. The hardening process takes a very short time; it may be delayed by cold weather, which has a bad effect on all other cements and lime, but the setting is not stopped. A wall coated with petrifite mortar will not crack if done in hot weather. Petrifite cement may be used in any climate and at any season of the year. Used as artificial wood, petrifite mixed with sawdust has the following advantages over ordinary wood. 1. It is one quarter the price of hard wood. 2. It does not expand or contract as natural wood does. 3. It does not split, nor crash, nor warp. 4. Uninflammable. 5. Free

* A paper read before the Architectural Association, on the 5th inst.

from the ravages of white ants. Two tables at the works of the Company, about 12ft. long by 3ft. broad, made of sawdust, are faultless, although they have had rough usage for about three years. This

ARTIFICIAL WOOD

can be cast into any shape or size, and can be worked with the same tools as ordinary wood. It also has the advantage that it can be made in large masses, uniform in quality and strength throughout. For flooring it can be made in an unbroken sheet. It can be made as to be easily sawn at any time, or else it can be made as hard as stone, and can be coloured to any shade. Two artificial stones made of sawdust and petrified have been tested for four years, one as a step outside the main entrance of the Landsberg Factory, and the other as a flag-stone at the entrance gate of a flour mill at Landsberg. Both of these stones show little signs of wear, although they have had very hard usage. At the offices of the Petrified Company, 10, Walbrook, there is a very interesting collection of specimens of a great variety of waste materials, such as road sweepings, ashes, and clinkers from the destructors, made into bricks by the City Commissioners of Sewers by being mixed with 25 per cent of petrified; and some really beautiful slabs made of waste paper pulp, and some slabs of polished plastic made of marble dust, even the sawdust and petrified blocks being capable of taking a polish, the grains of wood being so indurated with the petrified. The sawdust blocks also are practically incombustible. But it is not as an artificial stone, marble, or wood that I bring this under consideration, but as a new material to take up its own ground; and I think that this is the direction in which any discussion might be most usefully turned. Here are two materials of a highly plastic nature, and what is the legitimate treatment for them from an architectural point of view? Petrified can be run, moulded, or worked by a tool; either moulded and built in the walling in blocks, or run and modelled *in situ*. Much remains to be done to develop the proper treatment of cement work. Within its own limits stucco is as legitimate a building material as stone or brick.—The Chairman pointed out that, twenty or thirty years ago, the practice of

IMITATING MARBLES AND BEAUTIFUL WOODS would not have been countenanced by architects. He was afraid we had degenerated somewhat since then. It was, however, of considerable advantage to be able to use these waste products, but the question was, how would architects direct manufacturers to properly use the materials?—Mr. C. H. Brodie, having moved a vote of thanks to Mr. Searles Wood, Mr. Seth-Smith seconded, observing that nothing was more likely to get an architect into difficulties than the use of new and untried materials, hence the necessity for architects to have very open and at the same time conservative minds in regard to such materials.—Mr. E. Howley Sim remarked that when new material was put upon the market, he noticed it was often said to be capable of being used for almost everything. He would like to ask for the weak point about petrified.—Other questions were asked regarding the use of petrified, and Mr. G. F. Seddon, from the firm who manufacture it, explained that the material would not resist strong acid solutions any more than other cements would, but it would bear weak solutions. He did not know of any reason why it should affect the health. The price of cement petrified was 60s. per ton, but it was not yet in the market. The plaster specimen shown was not petrified, but was called petrified, which was supplied at about 50s. per ton. It had been discovered that the action of frost delayed the setting of the material for some time, but it did eventually set, and sooner than Portland or any other kind of cement. As to having a weak point, he did not know of the material having any. With regard to the porosity of the cement, coal brickettes—coal dust and 3 per cent. of petrified—when immersed in water twenty-four hours showed an absorption of 6 per cent. After being immersed forty-eight hours it was $6\frac{1}{2}$ per cent., but at fourteen days there was no great difference.

ARCHITECTURE AS A PROFESSION.

By A PROVINCIAL PRESIDENT.

MR. LESLIE OWER, president of the Dundee Institute of Architecture, in delivering his inaugural address of the present session, offered a few truths for the contemplation of architectural students. There is a healthy tone about Mr. Ower's address. We give the following extracts:—"Opportunities and facilities for the study of your Profession are available now to every one in a far greater degree than ever has been the case in our country. Other nations, France in particular, have encouraged the study of Art and Architecture for generations before we thought the subject worthy of notice, and just as the parochial schools of Scotland, instituted in an age when education was at a very low ebb in all countries, raised the Scot above the average of his fellows and made his foremost position a proverb, so has the Art education of France raised her standard above that of other nations. But we are fast making up for lost time, and it behoves our students to take every advantage of the opportunities put in their way. For let them remember that to whom much is given, of them much shall be required. When such opportunities are available the standard of attainment will ever be on the rise, and to those who do not profit by them, those opportunities can only prove like the talent hid in the napkin, the strongest reason for self-conviction. But let not the student think, on the other hand, that all of Architecture and all necessary for the practise of his Art is to be learned in schools, aye, or even in the office. Nay, the world is the architect's schoolmaster, for he has many to serve, many wants to supply, many crude ideas to reduce to workable shape, many cranks to conquer, many aspirations to sympathise with and strive to give effect to. He has much to learn, for the public expect much from him. Indeed, my experience is that there is almost nothing an architect would not need to know about. He has to be an artist and a thorough business man, two qualities which, like old age and want, are an ill-matched pair. He has to have

A THOROUGH KNOWLEDGE OF ALL THE TRADES,

and to be skilled in construction and in the properties and strengths of the various materials with which he has to deal. Sculpture and painting he must be familiar with, so that he may appeal to them as his good faries for the final touches to grace his finest works. He has to be sympathetic and trustworthy, a gentleman in his feelings and address, judicious as well as firm in many responsible positions. Truly, when we think of all that has to be learned, we are impressed with the truth of the poet's words that 'Art is long and time is fleeting.' But though you have chosen a Profession which entails hard and life-long study, you have also one which has its compensations. You are engaged in an honourable Profession which, worthily pursued, brings pleasure if not profit to its devotee. Especially, would I say, revel in the pleasurable parts of your Profession in your student days, while you have time and opportunity, for as years go on you will ever find increasing demands made upon you, and the drudgery work which has to be done will take a far too large share of attention. Enjoy your sketching tours and visits to old buildings, and to new ones also, for from them much is to be learned. Cultivate the love of the beautiful and seek it in all you see, in the buildings around you, in sculpture and painting, in the universe of God with its many aspects, the fair smiling landscape, the sky studded with stars, or tinted as never man can paint with the glories of the setting sun, the broad majestic sea, powerful in its calm and terrible in its wrath, the awe-inspiring thunderstorm—all these are sources of inspiration and education for your Profession, and in the study of them you will find a great reward; the reward which comes from a well-stored mind, whose memories of pleasant days of study when the heart was young and all the world was fair, will, in the busy days of professional work and

drudgery, waft back the spirit to drink at those fountains of inspiration from which it will rise refreshed to embody their

INFLUENCE IN LIVING ARCHITECTURE.

On our members I would urge the desirability, nay the necessity, of their taking a decided and loyal stand together on many points. Petty jealousies ought not to be allowed to keep the Profession from showing a united front when unreasonable demands are made or unfair conditions laid down, either as regards competitions, fees, or any other question affecting the Profession as a whole, or any individual member of the Institute. In these days of excessive competition, combination is absolutely necessary, as we can see in all trades and professions; and the only way of making our Profession take the position it is entitled to is to be loyal to our common professional interests and to each other. The Institute is much indebted to our Associate members for the kindly interest they take in Architecture, and the support afforded us by the Associates enables us to carry on our work in a more extended way than would otherwise be possible. To them and to the public generally I would quote the words of Ruskin: 'But above all remember that it is chiefly by private, not by public, effort that your city must be adorned. It is only by active and sympathetic attention to the domestic everyday work which is done for each of you that you can educate either yourselves to the feeling or your builders to the doing of what is really great.' It does not fall to the lot of everyone to directly influence the design of a building, but by taking a lively interest in the subject our Associates and the public generally can help to create that standard of taste which will not be satisfied with poor or commonplace design or workmanship. We have only to look at articles of everyday use to see that there has been a great advance in public taste in recent years, and the tendency is still

TO RISE TO GREATER EXCELLENCE.

Wall-papers, for instance, are marvels of good taste combined with cheapness. Children's picture-books are works of Art, and must have an educative influence on the coming generations. Tiles, furniture, and textile fabrics now adorn the homes of the many instead of being procurable only by the wealthy. In this advance in public taste, and the bringing of beauty and refinement into the life and soul of the people, I think there is great ground for satisfaction. Art has never had, and never can have, such a potent influence over the heart of man as to guide him to the right conception of spiritual truth, as some of its over-zealous advocates would almost try to make us believe. But it has a great and ennobling influence, and leads men's minds to the contemplation of the source of all that is beautiful and true, and those who encourage it in any way, whether in the common articles of every-day life, in painting, in sculpture, or in building, may rest assured that they are at least helping forward to some degree the building of that spiritual temple 'whose walls shall be Salvation, and whose gates Praise.'

The London County Council has lately been making inquiries with a view to ascertain the precise value of the chalybeate springs on Hampstead Heath, and as a result has placed a new fountain on the West Heath, close to the Leg of Mutton Pond.

A most beautiful piece of modern sculpture has just been unveiled in the Church of St. Cybi, at Holyhead. It is the altar tomb in memory of the late Hon. Wm. Owen Stanley, upon which Mr. Hamo Thornycroft, R.A., has been engaged for some years.

READY-SQUARED granite blocks are procurable at a quarry in Newfoundland, according to a paper read recently by Mr. Outerbridge before the Franklin Institute. The masses are of various sizes, and are so geometrically formed by Nature that they are to be obtained in abundance, quite ready for the builder's use. There are buildings in St. John's constructed entirely of these granite blocks, on which no artificial dressing has been necessary.

Professional Items.

BIRMINGHAM.—The curious and (outside) infinitely ugly old building known as St. Mary's Church, Whittall Street, Birmingham, in the heart of what was once the "gun quarter," and is now more or less a nondescript district, has just left the hands of the restorers. St. Mary's was one of the three city churches originally scheduled in the Churches Bill, but was rescued from the hands of the despoilers. Messrs. Bateman and Bateman are the architects for the restoration, Messrs. Horton and Son the decorators, and Messrs. Jeffery the builders. The heavy drooping ceiling is now a handsome dome, painted in panels in more or less classic and conventional designs in three primary colours and soft-graded tones. The walls are of tender apple-green hue to the level of the old galleries, and above that in cream colour, and the windows are framed in ornament in blue, green, and red, in designs which harmonise thoroughly with the ceiling. The pillars which now carry the roof direct are more massive in proportion than the old divided supports. The groundwork is a creamy white, with flutings and bands of maroon red. Above the cornice of the ceiling is a broad band of floral ornament in two shades of red, and from this band to the open work centre of the apex the angles are marked by ribs of leaf ornament in indigo blue and sage green; the triangular spaces thus formed are filled in with larger planes of stencilled ornament, suggesting the Italian detail of the fifteenth century—the architect has, in his designs, availed himself of several drawings made while travelling in Italy a few years ago. This is mainly in a rich chrome yellow, with shields of red in the centres. Nothing has been attempted in the small chancel, though the removal of the gallery has set free on either side the spaces which were formerly occupied by staircases.

The new city meat market and slaughterhouses, in Bradford Street, have already attracted considerable attention in the country. The London County Council having delegated to the Public Health Committee the question of considering the desirability of providing public slaughterhouses for the metropolis, in order to obtain information on the subject, sent a deputation to Birmingham to inspect the buildings. The visitors (including Mr. T. Blashill, L.C.C. architect) were shown over the buildings, and the committee and officials explained to them the various details of the different departments. The slaughterhouses and the mechanical arrangements for the transport of the carcasses in the wholesale market were particularly inspected, and the deputation congratulated the committee and the city upon the possession of markets which were perfect in their appointments and general arrangements.

CROY.—Croy Free Church stands on a commanding site, and is within a stone-throw of the manse. It is a plain, substantial building, and has been in existence since 1852. Some ten months ago it was decided, on account of the dilapidated condition of the edifice and uncomfortable internal arrangements, to entirely renovate and remodel the structure. Briefly, the whole of the old galleries have been removed and a curved end gallery adapted instead, the body of the church and gallery being fitted up with wide, comfortable pitch pine seating. Finished in pitch pine and cypress wood, of circular form, the pulpit is very handsomely designed, and presents a pleasing appearance. The choir accommodation is on a raised platform, which is to be fitted up with chairs. The walls and ceiling of the building are pointed in soft rich colours, while all the woodwork throughout is stained and varnished. An addition has been made at the back of the church, and this is utilised as a staircase, hall, and entrance lobby for access to the gallery.

DARTFORD.—Plans for proposed improvements to the Asylum buildings at Stone, near

Dartford, at a cost of £46,770, have recently been adopted. Tenders for the work were invited from eighteen well-known firms of builders. Three declined, and the remaining fifteen sent in tenders ranging from £59,000 to upwards of £80,000. Those tenders were for the erection of the fabric of the building only, and did not include any machinery, internal fittings, or furnishing. The visiting justices consider that a further sum of £10,000 beyond the amount of the lowest tender will have to be expended on those items, and on certain works which have recently become necessary. A very considerable increase had taken place in the price of builders' materials, more particularly in the price of bricks, and owing to the disturbed state of the engineering trade difficulties had been experienced on the part of the firms tendering in obtaining quotations for the ironwork required. Those causes had largely tended to increase the estimate originally formed. As it was of the utmost importance that the works should be at once proceeded with, the visiting justices are seeking to obtain an increase of the grant from the Corporation to £70,000 instead of £46,770.

DUNDEE.—A sub-committee of the Dundee Town Council recently considered the question of exits from public works in case of fire. Two sub-sections of Section 7 of the Factory and Workshop Act, 1891, specially engaged attention. Under the first it is conditioned that in the case of every factory erected after 1892, in which more than forty persons are employed, it will be necessary to procure a certificate from the sanitary authority that the stories above the ground are provided with such means of escape, in case of fire, as can reasonably be required in the circumstances. The Committee resolved to recommend that the Burgh Engineer be instructed to report to the Sanitary Committee on all factories and workshops which should be certified in terms of the statute. The other sub-section (No. 2) stipulates that with respect to all factories not affected by the foregoing provisions of the Act, and in which more than forty persons are employed, the sanitary authority shall see that proper means of exit are furnished, and in the case of inadequate provision serve notices on the owner to have exits provided. The Committee recommended that the sanitary inspector be instructed to give effect to the Act. The Works and Sanitary Committees will consider these recommendations in January.

FELIXSTOWE.—At a meeting of the Felixstowe Urban District Council, Mr. Thos. Ward brought forward a motion in reference to modifying the specification for street paving. It was to the effect that instead of 10in. of material there should only be 7in., consisting of 3in. of brick, 1in. of chalk, and 3in. of granite. He referred to the complaints which had been made about the expense of the present specification, and urged that the modification he had proposed would answer every purpose, and be satisfactory to the majority of the ratepayers. A good deal of discussion ensued on the point, and eventually 8in. was substituted for 7in., and the proposition agreed to.

FELLING (DURHAM).—The stone-laying ceremony in connection with the new Sunday schools of the Wesleyan Chapel, Felling, took place recently. The site of the new building is at Holly Hill, and is sufficiently large to allow of the erection of a chapel at some future date. The building is of local stone. A central hall or schoolroom, 57ft. by 30ft., forms the main department, having at the sides of the same entrance halls, book stores, cloakrooms. At the west end of the schoolroom, and running along the gable of same, is placed a corridor, out of which opens back entrance, ladies' meeting-room, and kitchen. Adjoining these rooms and directly connected to schoolroom and corridor is an infants' room and vestry, which has a separate external entrance and lavatory accommodation. Special attention has been devoted to the ventilation and heating, the latter being by means of hot

water coils, supplied from a heating apparatus in the heating cellar under one of the larger classrooms. The work is being carried on from the designs and under the supervision of Mr. James W. Frazer, architect, Newcastle, the contractor being Mr. Robert Davidson, of Davidson Terrace, Felling.

GATESHEAD.—The foundation stone of St. Chad's Parish Hall and schools, Westminster Street, Saltwell Lane, Gateshead, was laid recently. The building is designed in the domestic Gothic style of Architecture, the elevations being carried out in brick with stone dressings. The main front elevation is faced with pressed Comondale bricks, and other elevations are faced with Birtley bricks. The large hall, which is entered by a porch from Westminster Street, is lined with brick, a dado of cream-tinted glazed brick running round the hall, a sanctuary being formed at the south end having a movable partition to screen it when not in use for services. The hall has a high open-timbered roof. The school has four class-rooms, boiler-house, yard, and offices. The architect is Mr. Eugene E. Clephan, of St. Nicholas' Chambers, Newcastle, and the contractor Mr. Isaac Bewley, Dunston.

HERNE BAY.—The foundation-stone of the Passmore Edwards Convalescent Home, to be erected in the neighbourhood of Herne Bay, has just been laid by the founder. An excellent site for the Home has been purchased, and the cost of erection of the building, as also that of fencing the land, estimated at £6000, has been undertaken by Mr. Passmore Edwards. The building is to be three stories in height, and will contain accommodation for some fifty patients. Spacious gardens are also to be provided. It has been sought in the elevation of the building, no less than in the grouping of the rooms, to avoid the idea of an "institution," as opposed to a "home."

HOOTON PAGNALL.—A lych gate has just been erected at Hooton Pagnall, under the careful direction of Mr. E. Bernard Wilson, architect to the Frickley estate. It is massively constructed of well-seasoned English oak resting upon dwarf walls of local masonry, and covered in by red tiles. It is designed in the Fifteenth Century or Perpendicular style of Gothic Architecture, and is thus, in conception and general grouping, admirably adapted to the immediate surroundings. The ridge is surmounted by a metal cross. It is worthy of remark that in the construction and putting together of the bulky timbers no sort of metal screw or nail is used, the whole being held *in situ* by oaken pins. As an example of modern constructional carpentry the work is of a very excellent class, and distinctly that of specialists in the higher walks of wood Architecture. The floor beneath the lych gate is flagged with stone. The gate has been made by Messrs. Hems and Sons, of Exeter.

IPSWICH.—The parish church of Playford, near Ipswich, was recently re-opened by the Bishop of Norwich. The old roof of the church was coiled over, and whitewashed below, after the fashion commonly in vogue many years ago, and the rafters had become rotten and worm-eaten. It was absolutely necessary, therefore, that something should be done, and the plain open roof of oak, which has now been substituted, is in every way a great improvement. From plans sketched out by the churchwarden, the work has been executed by Mr. A. Kersey, of Great Bealings. New gable crosses have been placed in the nave, at the east and west end. A shaft of one of the old crosses, which is believed to be as old, if not older than the edifice itself, has been carefully preserved. With the completion of this project, this interesting and picturesquely-situated church is very nearly brought into a perfect state of repair.

LONGFORD (DERBYSHIRE).—In the Longford parish churchyard in mediæval days, a very fine old cross stood towards the south-east of the sacred fane, and indeed the steps and base

stones, as well as half of the splendid monolith shaft, exist till this day. All above met the common fate from iconoclastic hands some two or three hundred years ago, and in its insulted ruined shade the shamefully treated emblem of Christianity has remained until now. The work of a generous renovation being decided upon, Messrs Naylor and Sale, architects, Iron Gate, Derby, were consulted. After much archaeological research, they were enabled to find out pretty nearly what the original cross was like. It is satisfactory, therefore, to know that in its now completed state the whole is practically a *fac simile* of what it originally was. The renovation has been most conservatively carried out—not a bit of the existing old stonework, not even, in fact, a green-grown lichen! has been disturbed; but the new work has been strongly carried right up, straight off the fracture on the old shaft. It has been worked in one piece of Hollington stone (a fine block, over 7ft. high). The lower part is octagonal, carrying gracefully the line and battering of the ancient column. Above is a foliated cross, the final termination and finish of the arms being crisply carved with conventional foliage of fifteenth century type. Towards worshippers, as they leave the south-west porch of the old church, is a well modelled and sculptured figure of the crucified Christ, nailed to the tree, crowned with thorns, with a nimbus behind the sacred head. Above is the *tulle*, upon which are inscribed the four initial letters, "I.N.E.I." On the reverse side, i.e., facing east, and looking towards those who wend their way from that direction to the church, is a finely conceived statue of St. Chad. Most of our old English saints are known by their particular emblems, but St. Chad is never so represented; and so the sculptor has judiciously shown him simply arrayed in full canonicals, mitred, and holding his crosier lightly between his arms, whilst he seems earnestly directing those around him to a study of Holy Writ, an open copy of which he holds in his hands. The saint stands secure enough upon an effectively carved corbel, and has a nimbus behind his head, and is passingly protected from the weather by a cusped canopy projecting pleasantly, with ogee outline ("Curved is the line of beauty, straight is the line of duty"). This interesting restoration at Longford parish has been carried out under the architect's immediate directions by Messrs. Hems and Sons, of Exeter.

PETERHEAD.—At the monthly meeting of the Peterhead Harbour trustees, Mr. Barron, engineer, under remit, reported as to the suitability of various sites suggested for a fish market. In selecting a suitable site for a market, he said there should be kept in view the essential requirements and conditions of accessibility to and from the sea, deep water and shelter, room for extension, large floor space, and connection with railway system. The ground available for a market and having all these requirements was unfortunately very limited. In considering and fixing upon a suitable site, it should be kept in view that the harbour possesses both a north and a south entrance, one of which was almost always available, irrespective of the state of the sea or weather. It would therefore be desirable to consider at both harbours, although he believed that experience pointed to the south harbour as the most suitable place. The various sites appearing more or less suitable were referred to the Committee for consideration.

Notice to London and Provincial Readers.

The Editor of the "Builders' Journal" will at all times be pleased to receive and consider articles of a professional or technical character suitable for these pages. Papers read before Architectural bodies will also, if forwarded, receive careful consideration.

THE WINTER SESSION.

WOMEN AS SANITARY INSPECTORS.

THE question whether women sanitary inspectors should be admitted to the membership of the Sanitary Inspectors' Association, excited much difference of opinion at the inaugural meeting of the Association, over which Mr. Dee, Westminster, presided. Two ladies, Miss Alice Tattersal, and Miss Emma Coppock, who are employed as sanitary inspectors by the Corporation of Manchester, were proposed as members, and, while their nomination was warmly supported by one section of those present, there was another, equally energetic, and more numerous, who maintained that women ought to be excluded from the Association. Several members protested against the incursion of women into callings for which they were unsuited. In reply, it was stated that with regard to sanitary inspection, the work in certain circumstances could better be performed by women than by men. On a division being taken, the proposal that women should be elected to the membership of the Association was rejected by forty-nine to thirty-nine votes. Subsequently, when the election of new members was proceeding, attention was drawn to the fact that all candidates gave their full Christian name, with one exception, in which case the surname was preceded simply by the letter "A." The initial, it transpired, represented "Annie," and several members protested against what they called an attempt to elect a female member by a trick. The candidate in question was thereupon struck off the list.

GREEK ART.

At the first general meeting of the Hellenic Society, held at 22, Albemarle Street, at which the chair was taken by Mr. Talfourd Ely, Professor Ernest Gardener read a paper on a Greek vase in the museum at Harrow School. This vase, he said, of which the subject was Caeneus and the Centaurs, was the gem of the collection which was presented to the school museum by Sir Gardner Wilkinson. It had recently been admirably cleaned, in common with others, by Mr. Sharp of the British Museum, and we might now be tolerably sure that all that was left was the work of the original artist. The figures painted on the vase were those of Caeneus, who had wounded the central Centaur. The latter was about to hurl a huge stone on the hero. Two other Centaurs on either side held pine branches with which they were about to strike Caeneus. The drawing was wonderfully vigorous, and belonged, undoubtedly, to the best period, and no hesitation could be felt in assigning the vase to the age of Euphronius or Onesimus. The fishy eye and the fierce aspect of the middle Centaur, and the subtle gradations of expression from the more or less savage appearance of the two Centaurs on the sides to the delicate features of Caeneus, were efforts of marvellous skill, and the bold invention exhibited in the drawing was probably due to Euphronius himself. The legend of Caeneus was one of the most interesting in Greek mythology. It was found in various forms from Homer downwards, and the beginning of it was to be traced to the battle with the Centaurs at the wedding of Peirithoos.

A FEAT IN CONSTRUCTION.

At the ordinary meeting of the Institution of Civil Engineers last week, Sir John Wolfe Barry, K.C.B., F.R.S., the President, in the chair, four papers, by Sir E. Leader Williams, M.Inst.C.E., Mr. Whately Eliot, M.Inst.C.E., and Mr. W. O. E. Meade-King, M.Inst.C.E., dealing with the construction and working of the Manchester Ship Canal, were read. The first paper gave an historical account of the undertaking, with a general description of its construction and equipment. The Ship Canal Bill was obtained in 1885, the plan being modified to meet the strong opposition to training walls in the Mersey, by substituting a semi-tidal canal along the Cheshire side of the estuary, commencing at Eastham, about six miles above Liverpool. The length of the

canal to its termination is 35½ miles. The excavation had amounted to about fifty-four million cubic yards, including twelve million cubic yards of sandstone rock. The expenditure of the Company to the 1st January, 1897, had been £15,168,795 15s. 11d.; and the traffic had increased from 925,659 tons in 1894 to 1,826,237 tons in 1896. The construction of the Eastham and Runcorn divisions of the canal, when it was found necessary to take the line across the bays by embankments between the canal and the estuary, was described in succeeding papers. Exceptional difficulties had been encountered with portions of the Pool Hall Bay embankment. An account was also given of the use of the high-pressure water-jet in pile-driving through the sand, which had been adopted with success at Ellesmere Port Bay. The last paper presented a description of the Irlam Division, where the nature of the work was rendered difficult by the frequent crossings of the Rivers Mersey and Irwell.

"EIGHTEENTH CENTURY ARCHITECTURE."

At the monthly meeting of the Sheffield Society of Architects and Surveyors, Mr. J. A. Gotch, F.S.A., F.R.I.B.A., delivered his lecture on "Eighteenth Century Architecture," which was amply illustrated by numerous photographs of buildings, with plans and details, and lime-light lantern slides. The lecturer said the view of Architecture taken in the eighteenth century was very narrow, being little more than a consideration of the Five Orders. Neither Evelyn nor Addison had the slightest sympathy with Gothic work, and they may be taken to represent the cultured feeling of the age. The Renaissance had now developed to such an extent as to produce little more than copyism of Italian buildings without suitable adaptation to English wants. Architectural design was amateurish and artificial, and its professors were far behind the great masters, Inigo Jones and Wren, in ability. The large houses, of which many were built for great nobles, were devised for display rather than comfort. The state apartments were large and magnificent, and the exteriors were stately and striking, but the family apartments were tucked away as best they could be, without regard to the first principles of house planning. The smaller houses, however, were much more pleasing, and there are few towns which do not possess specimens of the Queen Anne or Georgian house, simple and appropriate in design, and marked with enough character to render it interesting. The interiors of these smaller houses are generally well treated, and the woodwork of the period still furnishes abundant hints to designers of the present day. One inheritance we have from that time which alone would render it memorable, namely, the sash window.—A vote of thanks to the lecturer was moved by Mr. J. Smith, seconded by Mr. C. Hadfield, supported by Mr. C. J. Innocent, and carried unanimously.

FURNITURE.

The Architectural Association of Ireland held its usual fortnightly meeting in the Grosvenor Hotel, the President in the chair. Mr. T. R. Scott delivered an interesting address on "Furniture," chiefly from a practical point of view. The lecturer illustrated his remarks by a large number of specimens of work, finished articles of the Sheraton and Chippendale periods, and examples of early Victorian, these last chiefly as specimens of what to avoid in design and construction. Mr. Scott dwelt on the importance of allowing sufficient time in which to execute an order, reminding his hearers that there was no such thing as timber over 3in. thick seasoned fit for immediate conversion into articles of furniture. Hence, he said, architects should design so as to admit of small scantlings being used, and, if necessary, built up to avoid the use of great masses of solid wood. The lecturer strongly advocated the great utility of dowelling as opposed to tenoning for indoor joinery.—Mr. Moore proposed a vote of thanks, saying he had often been troubled to get a tenon in

certain bits of construction which would really hold the work together without cutting away all the stuff, and said dowelling appeared to afford a valuable method of dealing with certain problems.—Mr. R. M. Butler, in seconding the vote of thanks, said it was oftentimes a source of difficulty for an architect to know the very best method of construction in every handicraft, and one felt small if some shop foreman pointed out utter impracticabilities in a working drawing. Lectures like Mr. Scott's would do much to tell the members many things that could not be learnt from books.—Mr. George Sheridan and Mr. Holloway also spoke.—The President, in putting the motion, said many theorists said an architect should first be a craftsman then a designer. He supposed one should first spend a year or two in a carpenter's shop, then in a forge, another year at a cabinet maker's, another at a stained glass works, and yet another at a foundry; and if the architect then had any spare time he might devote it to picking up something of Architecture; but he thought the nearest thing to such a course in these times were lectures like these.—It was announced that Mr. A. W. Moore had been appointed joint-secretary in the room of Mr. Gleave resigned, and that Mr. George Sheridan, A.R.I.B.A., had been co-opted a member of the committee, to fill the vacancy created by Mr. Moore's appointment, and Mr. Joseph Geoghegan had been appointed honorary librarian in the room of Mr. Frederick Hicks resigned.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

The first meeting of the Session 1897-8 was held at 32, Sackville Street, Piccadilly, Mr. Thomas Blashill, in the chair.—The Rev. J. Cave Brown, M.A., exhibited an elegantly-shaped vase of terra-cotta of mediæval date, and found in the neighbourhood of Maidstone.—Mr. J. Chalkley Gould submitted several good examples of James II. base coinage, 6d., 1s., 2s. 6d., and 5s., respectively, known as "Irish Gun Money," and read some notes descriptive of them, partly derived from Gill's "Manual of English, Scotch, and Irish Coins." This "gun money" was issued by James II. after his landing in Ireland in 1689 with 5000 followers, in order to obtain the necessary funds for the prosecution of the war he had commenced for the recovery of his throne and dominions. His first step was the issuing of a proclamation increasing the value of English coins in circulation, which was soon followed by the manufacture of this "gun money," consisting of six different pieces, made of copper or brass and baser metals, the materials being obtained by the melting down of old copper pots and kettles and old brass cannons. Another coinage of this period was that of pennies and halfpennies of tin or white metal, having a plug of "Prince Rupert's" metal inserted. Mr. Gould also exhibited some examples of James's British pewter coins, which circulated also in Ireland, having a plug of copper or mixed metal in the centre of each.—Mr. C. H. Compton, V.P., read a paper on Rhuddlan, a village in Flintshire, where are the ruins of a castle, which were formerly a hospital, a priory, and a preceptory of Knights Templars. The earliest record of the place occurs in A.D. 795, when a battle was fought between the Saxons and Welsh, in which Caradoc, King of North Wales, Meredyth, King of Dyvid, and Offa, King of Mercia, were slain. Very little is known of the hospital; it most probably merged into the priory, which lasted till the dissolution, when it was granted to Henry ap Harry, 32 Henry VIII. The castle is said to have been built by Llewelyn ap Silto Yllt in A.D. 1015, and after frequently changing hands between the English and Welsh, it was held by King Edward I., when he conquered the Welsh on the death of Llewelyn in 1282, and it was here that the terms of the Welsh Capitulation, known as the Statute of Rhuddlan, was signed on the Sunday in Mid-Lent in 1184.—The Chairman made some observations descriptive of the formation of the castle, and Mr. Worsfold, Mr. Patrick, and others took part in the discussion.

Correspondence.

SANTA SOPHIA.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—It is, perhaps, due to your readers that I should be permitted to add a postscript to the article on the Dome of Sta. Sophia which appeared last week.

In speaking of the methods adopted for graduating the vaulting, it is implied that of the vertical faces of the supporting arches for the pendentives, only a few inches are exposed. This is not, of course, strictly correct, for they are really much deeper. It does not, however, affect the principle so manifest in the vaulting of this building, viz., of producing as gradual a transition as possible in the various surfaces; for probably one of the most striking instances of its application is presented in these very arches, which, on the east and west, are almost deprived of their identity by being merged into the semi-domes of the main extension.—Yours faithfully,

JOHN A. MARSHALL.

Nov. 8th, 1897.

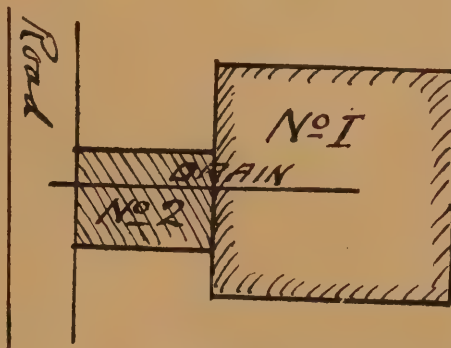
Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

A POINT OF LAW.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly give me your legal opinion on the following case:—In the year 1882 A buys an estate (No. 1), and to drain it buys a second (No. 2); he afterwards sells No. 2 to B. B sells to C, who now wants to erect new offices, but is prevented by local



authorities on account of the sewer running under proposed new buildings. Can C cut off the drain or claim damages, or what is his best remedy? No mention is made of the drain running through the land in conveyance from A to B or B to C. QUERY.

We have laid your enquiry before our solicitor, who has taken counsel's opinion on the point. The opinion is as follows:—"Assuming the facts to be as stated in the question, and that there are no other material facts undisclosed, I am of opinion that C can cut off the drain which passes from A's land under C's land. A is committing a trespass, and has no right to do so, even for sanitary purposes."

The galvanised iron buildings at the South Kensington Museum, which have for the past forty years disfigured the Cromwell Road, Kensington, have now been entirely removed.

Trade and Craft.

THE DURESCO WATER PAINT.

The Silicate Paint Company is the manufacturer of the Duresco water paint, which, for the last twenty years, has been employed as a substitute for paperhangings and other decorative work. It is not a distemper, as some would believe, but a preparation of ingredients which produces a textile-like surface in varied and beautiful tints. Its advantages over distempers and paperhangings are unique. Duresco being the same depth of colour, wet or dry, and, possessing hardening qualities, it can be thoroughly washed repeatedly with soap and water without any danger of injurious effects. Further, it is said to be impervious to damp or any climatic changes, hence its value from a sanitary point of view, whilst it does not scale off when once applied, and thus obviates the expense and trouble of having to be washed and scraped, as is the case with ordinary wall-papers. Amongst other qualities, Duresco is said to be so durable that it hardens and petrifies soft or poor plaster, and can be used as a fireproof paint on woodwork, interior and exterior, and on painted and unpainted surfaces. It is also considered to be cheaper than oil paint for smoke or water-stained ceilings before distempering, as it dries in a few hours, thus allowing the work to be finished in a day. Messrs. John Line and Sons, of London and Reading, have been appointed sole wholesale agents by Messrs. J. B. Orr and Co. Ltd. (proprietors of the Silicate Paint Company), and specimens of the Duresco work can be seen at their premises, 50, Berners Street, Oxford Street, W. Duresco certainly possesses qualities which claim careful attention.

THE EDISON AND SWAN UNITED ELECTRIC LIGHT COMPANY LIMITED.

An artistically-prepared "Historical Review of the Introduction of the Electric Light into England" has recently been issued by the Edison and Swan United Electric Light Company. The review details the progress made from the introduction to the present day, and by the aid of finely-printed illustrations shows the vast improvements in various kinds of lamps switches, and dynamos. The Company manufactures the High Voltage lamps, such as are now being introduced into the circuits of many of the leading electric light companies, and which require a pressure of from 200 to 250 volts. It is also the maker of the Admiralty lamps used in the Navy; the High Efficiency lamps, which consume a small amount of power for the light given; the Long Duration lamps, which last, under proper conditions, from 5000 to 10,000 hours, by using a larger amount of power; and the Standard Edison lamp, which is suitable for general use. Each of these lamps has special advantages. Provided the voltage is uniform, the High Efficiency lamp is the most economical where the Board of Trade unit of electric energy is expensive. Where the pressure is variable, and the cost of the electrical supply fairly high—for instance, sixpence per Board of Trade unit—the Standard Edison lamp is recommended; but where the electricity is supplied more cheaply, as on board ship, in factories, &c., the Long Duration lamp is said to be most economical. The Company has long since discontinued electrical installation work, but some idea of the extensive productions of its manufactories may be gathered when it is stated that it has nine different sections for making the ordinary and special lamps, fittings, holders, switches, shades, cables, wires, casings, heavy plant, instruments, and all the accessories for electric lighting. The Company is the inventor of one of the latest forms for advertising, the Edison Patent Kaleidoscope Sign, the revolution of colours being produced by an electric motor. Amongst other specialities of the Company is the Anti-Shock Tumbler Switch, strongly recommended for use on high voltage circuits. It is fitted with a special enamelled iron liner or cover, which envelopes the working parts of the switch,

thus preventing contact between the outside and the live contacts. The Ediswan Quick Break Chopper Main Switch is one of the latest switches introduced, and it is capable of shutting off all circuits from 12 to 200 amperes with remarkable rapidity. Of dynamos, one of this Company's most improved pattern is the Ediswan Continuous Current Dynamo, which is stated to be able to work at a very high speed without any undue wear and tear or vibration.

DEN ANKERSKE MARMORFORRETNING.

Some interesting particulars of the marble industry of Norway are given in a circular issued by this Norwegian-Danish Society. In Norway, marble is found in many districts, partly as calcareous spar marble and partly as dolomite marble, of varied colours and of different physical and chemical qualities. From ancient times it has been used in buildings, for walls in rough blocks, outside doorsteps, &c., but, comparatively speaking, it is only quite recently that it has been employed in the construction of buildings. The quarries in Nordland were not worked till 1882, but from that date, first by private enterprise and now on a larger scale by the above Society, the workings have extended into a great industry, in fact, sufficiently large to warrant exportation. The Society's head manufactory is at Fredrikshald, and it has a branch at Copenhagen. The productive machinery at the quarries having been enlarged, it can now deliver more than 6000 cubic metres a year, but this production can be increased to any quantity, as this Society possesses the title to many inexhaustible quarries throughout Norway. At present seventeen kinds of marble are manufactured by the Society, one of the principal being the white Furuli marble, which has been employed with good effect upon several buildings (notably at the Opera House, Stockholm), the marble being in demand on account of its pure, warm, and white colour, as well as its suitable corn. Of the seventeen kinds referred to, four white ones are dolomite marble, viz.:—Blanc Statuaire Furuli, a pure white statue marble; Blanc Furuli, a pure white dolomite marble; Blanc Furuli 00, a white with blue gray veins and streaks; and Blanc Furuli 000, a white with blue gray bands. The others are all calcareous marbles, but still there will be found in the red Breccies some white fragments of dolomite. The dolomite is of a heavier specific weight (2.87) than the calcareous marble (2.72) and of a greater hardness, 3.4 to 4, against 3 for calcareous, and at the same time it offers a better resistance to chemical influence. It has been proved that the white dolomite marble from Fauske, even in London, has preserved its fine white colour for several years, while Italian calcareous marble, after a short period, even in a comparatively clean atmosphere, gets darker, and assumes a gray, plain-looking exterior, caused, it seems, by a sort of oxidation on the surface. The solidity of the Norwegian dolomite, as to pressure, is unusually high, according to the tests applied, and thus the white Furuli marble is considered to be of good use for building purposes. Like all other materials, the marble gets blackened by downrunning dirty and sooty water, on account of which cornices and bands ought to be well furnished with water noses. On the building belonging to the Standard Life Insurance Company, Copenhagen, the front, from the socle to the top, is made exclusively of white Furuli marble, and the cornices and bands have, for protection in this respect, been covered with projecting slabs of slate, which, by their black edges, show very effectively the lines of the front. This marble has also proved to be extremely good for sculpture, but being much harder than the calcareous marble, the tools must be harder steel for turning and planing. The Society can also supply several kinds of coloured marble, all nicely tinted and streaked.

At a recent meeting of the City Commission of Sewers at the Guildhall, an arrangement was adopted for acquiring the freehold of No. 97, Fleet Street, for £5000, with a view to the widening now in progress there.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BARKING.—For the supply and erection of twenty cast-iron and five welded steel ventilation columns, &c., for the Urban District Council. Mr. C. J. Dawson, Surveyor to the Council, Barking:—

Columns.—D. T. Dawson, Barking*	£100 0
Nine Manholes.—D. T. Dawson, Barking*	95 0
Cast Iron Columns only.—Falkirk Iron Company	52 0
Both Kinds.—Bird and Co.	37 5
Steel Ventilators only.—Pigott & Co., Limited	142 15

* Accepted for both.

BEXLEY (Kent).—For the erection of a block of three houses in the main road. Mr. St. Pierre Harris, architect, 8, Ironmonger Lane, E.C., and Orpington:—

R. Butler	£1,040 0	S. A. G. Elms	£895 16 10
F. Wood	1,027 0 0	J. Lonsdale	833 0 0
T. Knight	989 0 0	Stebbins and Pannett*	748 0 0

* Accepted.

BOURNEMOUTH.—For alterations, additions, and painting at the Sanitary Hospital, Boscombe, Bournemouth, and other works in connection therewith. Mr. F. W. Lacey, borough engineer and surveyor:—

F. Hoare and Sons	£267 10	Jenkins and Sons	£279 0
J. Miller and Sons	612 0	J. McWilliam & Son*	545 0

* Accepted.

BRISTOL.—For the erection of a new girls' school (to accommodate 420), and for enlargements and alterations to the present infants' school, Summerhill, for the St. George's School Board. Mr. F. Bligh Bond, architect, 51, Cornstreet, Bristol:—

	For Contract 1.	For Contract 2.
Cowlin and Sons	£26,560	£1,960 0
E. Love	6,491	1,915 0
W. Church	6,483	2,028 0
H. A. Fore	6,450	2,145 0
Love and Waite	6,440	1,913 0
E. J. Tanner	6,175	—
J. Perkins	6,129	2,010 0
Hughes and Weeks	6,110	1,865 0
S. Williams	6,023	1,894 18
G. Humphreys	5,967	1,949 0
E. Clarke, Fishponds*	5,500	1,780 0

* Accepted for both.

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Six Lines or under	1	0
Each Additional Line		

Advertisement and Publishing Offices:
Effingham House, Arundel St., Strand, W.C.

CARLISLE.—Accepted for the erection of offices at Caldewgate, for Messrs. Carr and Co., Ltd. Messrs. Johnstone Bros., architects and surveyors, 39, Lowther-street, Carlisle. Quantities by architects:—

Building.—J. and R. Bell	£230 0 0
Joinery.—W. Latimer	813 13 0
Slating.—John Hewitson	51 10 6
Plastering.—S. Ferguson and Sons	96 18 3
Painting and Glazing.—R. M. Hill & Sons	135 5 0
Plumbing.—R. M. Hill and Sons	66 10 0

[All of Carlisle.] Total £2,093 16 9

CHINGFORD.—For the erection of two houses on the Chingford Hall Estate. Mr. J. Williams Dunford, architect, 100, Queen Victoria-street, E.C.:—

J. Reed	£780	F. J. Coxhead, Leyton-	2
W. Lawrence	740	stone*	2
E. Fuller and Son	710		

* Accepted.

CROYDON.—For the erection of stabling, stores, Middle-street, for Messrs. John Thrift and Sons. Mr. Broad, architect, 3, High-street, Croydon:—

S. Page	£255	J. Smith and Sons	£28
D. W. Barker	945	Pearson and Co.	87
E. P. Bulled and Co.	934	A. Bullock	87
W. Smith and Son	925	E. J. Saunders*	87

* Accepted.

ELM (near Frome).—For the erection of new board schools. Mr. E. H. Lingen Barker, architect:—

E. Walters	£285 0	C. Barnes, Frome*	£241
Hodder and Sons	850 0	W. Tovey	833

* Accepted.

HOLTYE (Sussex).—Accepted for the erection of residence and stables for Mr. J. H. Swift:—

Kirk and Kirk, Westminster	£1,500
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LONDON.—For the construction of new sewers, for the Westminster Vestry. Mr. G. R. W. Wheeler, surveyor Town Hall, Caxton-street, Westminster:—

W. H. Saunders & Co.	£10,666	R. Jackson	£24,8
T. Adams	8,943	J. H. Neave, Munster-	4,6
Peddie and	6,550	road, Fife*	4,6
C. W. Killingback and Co.	5,493		

* Accepted.

LONDON.—For rebuilding the "Union Arms Tavern, and billiard-room, Camberwell New-road, S.E., for Mr. F. J. Dewar. Mr. W. M. Brutton, architect, Trafalgar House Green-street, Trafalgar-square, W.C.:—

Rowe	£5,000	Lorden and Son	£5,8
Hopkins	5,985	Pritchard and Renwick	5,7
Wall and Co.	5,985	Whitehead and Co.	5,7
Wm. Smith	5,969	Courtney & Fairbairn	5,7
Burman and Son	5,953	Minter	5,6
H. L. Holloway	5,946	Edwards and Medway*	5,4

* Accepted.

Buckley and Beach 191

Buckley and Beach 408

W. Winn 2418

Buckley and Beach 408

LONDON.—For alterations to the "Swan and Horse Shoe Restaurant, City, E.C., for Mr. W. J. Grimes. Mr. W. J. Brutton, architect, Trafalgar House, Green-street, Trafalgar-square, W.C.:—

Little and Senecal	£2,271	Godson and Son	£2,2
Simpson and Cove	2,240	Whitehead and Co.	2,1
Lorden and Sons	2,229		

* Accepted.

LONDON.—Accepted for repairs, etc., to No. 90, Dean street, Soho. Mr. Walter J. Ebbetts, architect, St. House, 115, Strand, W.C.:—

J. M. Macey and Son	£286
---------------------	------

* Accepted.

LONDON.—For sundry alterations and redecoration of the Devonshire-square Baptist Church, Stoke Newington, N. for the Pastor and Diaconate. Mr. Alfred J. Martin, architect, 88, Old-street, E.C.:—

Ferry Brothers	£783	Chessum and Sons	£6
Chubb	764	Stapleton and Sons	6
Coldwells and Son	754	Stoke Newington*	6

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J. Kiddle and Son*	92 0 0	4d.

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LONDON.—Accepted for the erection of a factory at Ponds-buildings, Clapton, N.E., for Mr. T. H. Farley. Mr. J. J. Keefe, architect, Tottenham and Walthamstow. Quantities by Mr. George Norman:—

G. P. Hunt, Clapton	£1,342 10 0
LONDON.—For school drainage and sanitary work at Neckinger-road Schools, for the London School Board. Mr. T. J. Bailey, architect.	
J. Garrett and Son	£1,900
W. V. Goad	1,630
H. Leney	1,550
Lathey Bros.	1,493
W. Akers and Co.	1,435
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H. and G. Mallett*	1,311

* Recommended for acceptance.

MITCHAM.—For erecting new factories, for Mr. Hollis. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.:—

Larner	£1,377	Marchant and Hirst	£1,108
Antill	1,250	Lawrence	1,066
Green	1,246		

MOUNTAIN ASH (Wales).—For forming, levelling, and metalling roads and paths, Victoria Pleasure Grounds, for the Urban District Council. Mr. John Williams, surveyor, Town Hall, Mountain Ash:—

John John	£1,636	Miles Edmunds	£1,200
Evan Davies	1,321	Taylor and Son, Moun-	
Williams Brothers	1,361	tain Ash (accepted)	1,031

OXFORD.—For pulling down the existing "Horse and Chair" public-house at the corner of St. Ebbe's-street and

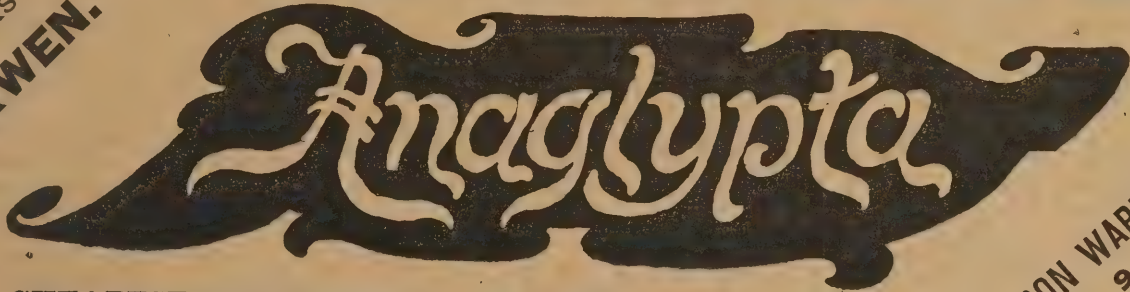
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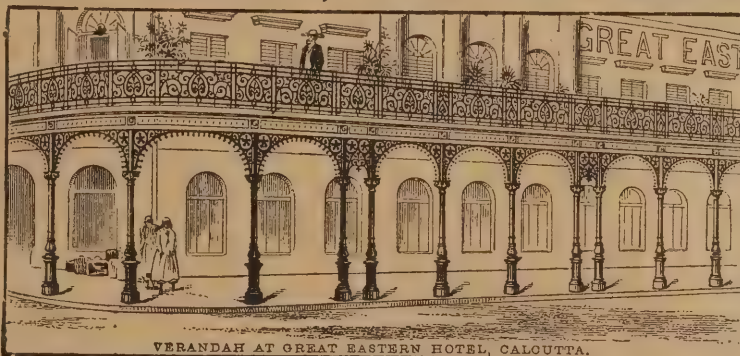
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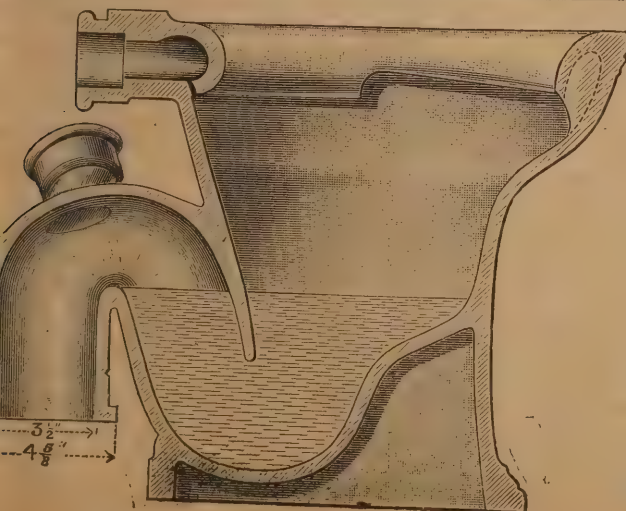


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Pembroke-street, and erecting a new public-house upon the site for Messrs. Hanley and Co., brewers, Oxford. Mr. Herbert Quinton, architect and surveyor, 15, Magdalen-street, Oxford.

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Organ Brothers	... 2,236	Wooldridge	... 2,065
Wyatt and Son	... 2,204		* Accepted.

RYTON (Durham).—For the erection of branch stores and cottages at Clara Vale, near Ryton for the Blaydon Co-operative Society, Limited. Messrs. Liddle and Browne, architects, Prudential-buildings, Newcastle. Quantities by architects:—

John Reed & Co.	£2,453 0 9	R. Thompson and	
Henderson & Son	2,427 18 6	Co.	£2,242 7 0
T. and R. Lamb	2,429 18 1	Jos. Bates	2,225 5 5
Davison & Bolam	2,318 5 6	Mrs. Armstrong	2,220 0 0
T. H. Wilson	2,312 15 0	Jos. Pelton	2,063 0 9

Mr. Pelton refused the contract, and Messrs. Bates and Armstrong submitted reduced tenders from schedule of deductions, and Mr. Bates' tender of £1,913 16s. 10d. was accepted.

STALYBRIDGE.—For the erection of a Conservative Club, Mottram-road. Messrs. John Eaton, Sons, and Cantrell, architect, Ashton-under-Lyne:—

Garside, Barnes, & Co., Stalybridge (accepted) £2,158

TAUNTON.—For new laundry, West of England Collar Works, Viney-street Factory, Taunton, for Mr. R. M. Moody. Mr. F. W. Roberts, architect, 2, Hammet-street, Taunton. Quantities by the architect:—

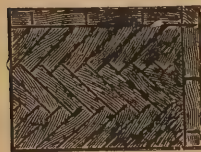
J. Manning	... £978 0 0	A. J. Spiller	... £971 12 6
F. W. Rowsell	975 0 0	W. Potter	969 0 0
H. J. Spiller, Taun-			* Accepted.
ton*	974 0 0		

WIVELISCOMBE (near Taunton).—For entrance lodge, Abbotsfield, Wiveliscombe, for Mr. W. Macadam Smith. Mr. F. W. Roberts, architect, 2, Hammet-street, Taunton:—

W. Potter	... £849 0	F. W. Rowsell, Taun-	
Vickery and Poole	735 0	ton*	£748 6
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Surveying and Sanitary SUPPLEMENT.

NOVEMBER 17TH, 1897.

Practical Carpentry and Joinery.*

By GEO. ELLIS.

(Continued from page 264.)

THE MANSARD ROOF (Fig 39), called after a French architect who popularised it in the seventeenth century, is formed by framing a king-post truss over a queen-post truss of different pitch, they are designed to utilise the roof space as a room, and also to reduce the height of the roof. The lower tie beam having to carry a floor and ceiling, and the queens not being in the best position to support it, must be of greater depth than would be required for an ordinary queen truss of the same span. There are several methods of describing the outlines of these roofs, that shown in Fig. 39 is a favourite method. Describe a semi-circle on the upper edge of the tie beam with radius equal to half its length. Divide the curve into five equal parts. Draw the top edge of the upper tie beam at the height of the first division, a perpendicular through the centre will locate the apex, and these three points joined by straight lines on either side will give the outline of the roof.

HAMMER BEAM ROOFS, of which those of Westminster and Hampton Court Halls are splendid examples, depend for their rigidity upon the strength of the walls supporting them, as, having no tie beams, the tendency of the rafters is to spread at the bottom. The thrust, however, is not great when a true pitch is used—i.e., the length of the rafter to equal the span, the outline of the roof forming an equilateral triangle. The one at Westminster nearly approaches this; but Hampton Court is a Mansard, which, probably, has something to do with the symptoms of failure now apparent, although erected nearly 200 years later than the other. A collar beam is usually introduced to stiffen the upper part, the weight passing down the hammer post to the outer end of the hammer beam, from whence it is carried by an angle stay, frequently a curved rib, to a corbel placed some distance down the wall. The collar beam is supported by ribs or brackets springing from the hammer beam, and also by a king-post, or puncheon, suspended from the heads of the principal rafters; the feet of the rafters are framed into the horizontal hammer beam, setting up a counterpoise to the leverage effect of the upper part, acting through the ribs and hammer post; and any sliding tendency is effectually checked by an iron bolt tying them to the bracket or wall piece. It will be noticed that the strength of these roofs lie rather in the exquisite balancing of the thrusts, than in the proportions of the

component timbers, which seem to have been determined more by the nature of the ornamentation than the requirements of the construction. Fig. 40 represents in outline the roof of Westminster Hall; R, is the principal rafter; P, the puncheon, or king-

post and hammer block and continued to the wall piece; W is the wall plate; W B, wind brace. The spandrels are filled in with pierced tracery, and all the members richly ornamented with mouldings and carving. Fig. 41 is a sketch of the foot of

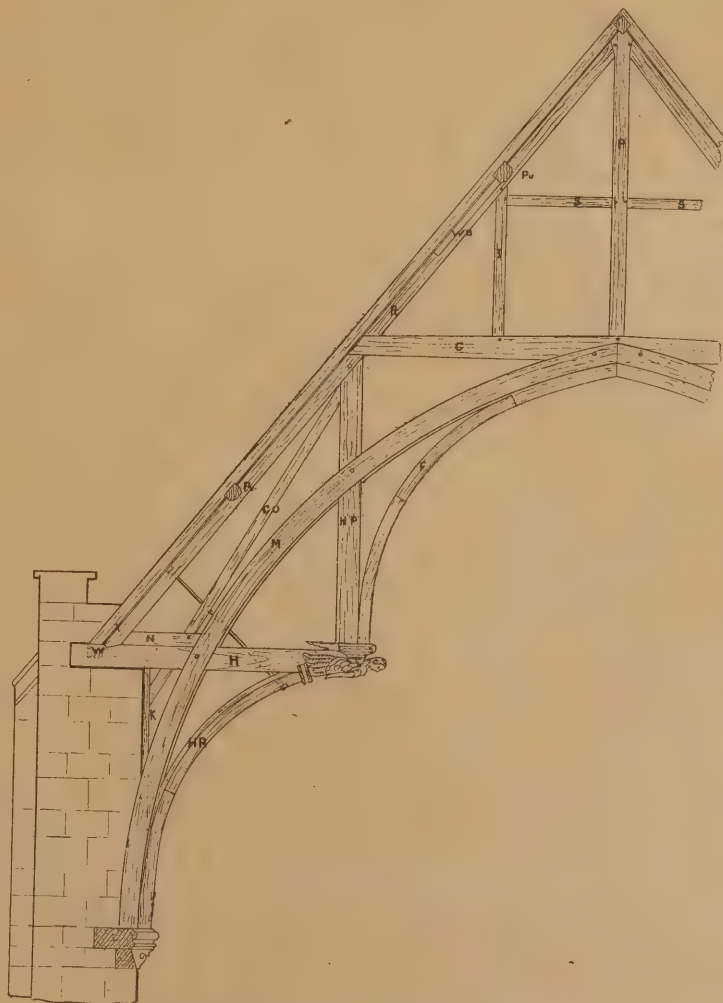


FIG. 40. OUTLINES OF WESTMINSTER HALL ROOF.

post; H, the hammer beam; H P, the hammer post; H R, hammer rib or bracket; F, the flying rib; M, the main rib (this is in two pieces, notched over the principal members, and is evidently used as a brace); C, the collar beam; S, straining beams; I, struts; Pu, purlins; L, the corbel; K, the wall piece; N, the hammer block; Co, counter rafter, framed into

a hammer beam truss, of small span, drawn to larger scale than the previous example, and showing clearly the mode of construction. The foot of the wall piece, K, should be dowelled to the corbel, and a short strut, S, is framed between the front wall plate and the common rafters, C R, to take the weight of the gutter, G, is a snow grating.

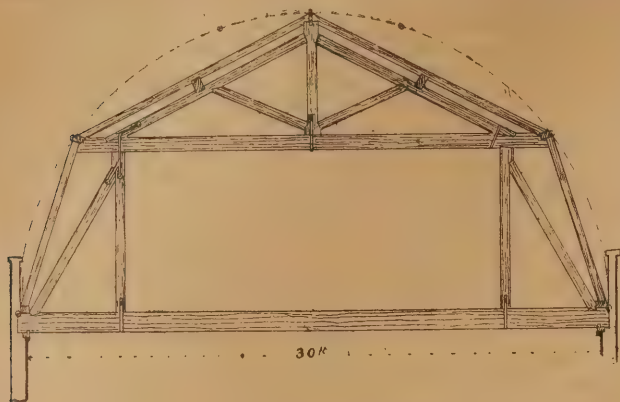


FIG. 39. A MANSARD TRUSS.

DETAILS OF ROOFS.—*Hip rafters* are used at the intersection of the inclined sides and ends of a roof, and are necessarily deeper than the common rafters, as they are of less inclination and longer span; they exert considerable pressure at the junction of the wall plates, and to withstand this it is usual to frame them into a dragging or dragon tie (Fig. 42). The wall plates are dovetail halved, at the angle, and about 2ft. to 4ft. from the end, are crossed by the angle-brace, A, notched down on the plates; one end of the dragon beam is tusk-tenoned into this, the other end being notched over the angle of the wall plate; the end of the hip is butt-tenoned into a mortice in the dragon beam. *Valley rafters* are those at the re-entrant angles of a roof. They do not need any tie at the foot. Valleys are usually boarded and covered with lead to form a gutter. When the intersecting roofs are not of the same height, the higher one is continued through, and 1in. by 9in. valley boards are nailed up the rafters on either side, in the position that would be occupied by valley rafters. Upon these are fixed the feet of the jack rafters of the subordinate roof. The short, common rafters, cut by the hips and valleys, are termed *jacks*. Fig. 38 is a diagram of a hipped roof, showing the position of the various parts, and the methods of finding the lengths of common, hip, and jack rafters, with the bevels and backing of the hip. To find the length of the hip rafter, erect a perpendicular from the point of plan where the hip meets the ridge. Set off the vertical height on this, obtained from the transverse section; join this point to the end

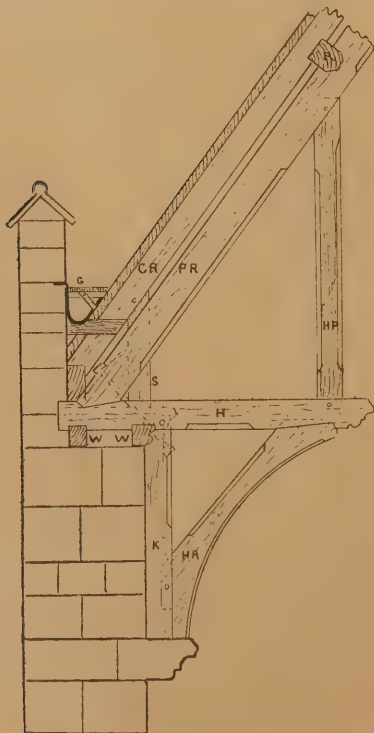


FIG. 41. A HAMMER BEAM TRUSS.

of the rafter in plan, and the line will be the true length of hip; the angles at each end of the hypotenuse of the triangle thus formed will give the side bevels for the hip rafter. To find the length of jack rafter, draw a line perpendicular to the plan of the hip from the point where it is cut by the plan of the jack, produce it till it cuts the elevation of the hip, found as described in the previous paragraph, with this distance as radius, describe an arc cutting a perpendicular drawn from the plan of the jack. Draw a line from the intersection to the foot of the jack in plan, which will be its true length. To find the backing of the hip, from any

point in the elevation of the hip draw a perpendicular cutting the plan as at C in the diagram; from this point, with the line as radius, describe an arc cutting the plan. From this point draw lines to points on the wall plates, intersected by a line through C at right angles to the plan of hip; this will discover the dihedral angle of the roof, usually called the hip backing.

GUTTERS are named either from their section or position, as angle (Fig. 43), box or trough (Fig. 44), parapet (Fig. 39), OG or eaves gutter (Fig. 32), V-gutter (Fig. 31), half-round (Fig. 41), secret (Fig. 45). The trough, half-round, angle, and secret, are parallel in plan, the others are tapering, due to their rise up the sides of the roof, and should have a step or "drip" of 2in. every 8ft. or 10ft. where joins in the sheets of lead are made. Each of these sections should have a fall of at least 1 $\frac{1}{2}$ in. to give impetus to the water; and a cesspool should be provided at the lowest point, about 12in. by width of the gutter, to collect the water and discharge it with force to the Hopper head, or down-pipe. The lead linings of the cesspools should be bossed up in the solid, and not soldered at the angles, and a wire cover should be placed over the outlet to prevent leaves, &c., passing down into the trap. All wide gutters should be fitted with snow gratings, of which Fig. 46 is a section, to prevent snow choking the waterway and causing an overflow under the slates; they are also useful to prevent the wearing of the lead by workmen repairing the roof, &c. The battens should be nailed to the arched bearers about $\frac{1}{4}$ in. apart, if wider, the snow will fall through and freeze, and they should not be more than 10ft. long or they become unwieldy. The secret gutter formed in the back of a hip rafter (see Fig. 45) is used where rolls or purpose-made ridge slates would be undesirable, a groove 2in. by 1in. is made in the edge of the rafter and lead dressed in and over the edges, the slates abutting over with a very slight joint. Fillets must be nailed at the sides of the hip to carry the jack rafters. *Lead flats* are subject to the same rules as gutters in respect of fall and drips; the sheets of lead are jointed at the sides by turning them over 2in. wood rolls fixed to the boarding spaced about 2ft. 10in. apart (the average width of sheet lead). The boarding should be laid in the direction of the fall, so that in case of an edge lifting it will not cause an obstruction; as a further precaution the boards should be laid with their heartsides upwards, for reasons refer to article on timber on page 123 (No. 136). All the sharp arrises must be taken off and the edges of the drips rounded to prevent the cutting of the lead.

At a sale of timber on the Troston estate in Suffolk, one of the lots was a fine oak, which was brought by Messrs. Rattee and Kett, of Cambridge. It was 24ft. in length, with a girth of 48ft. 6in. It weighed 15 tons, and was drawn upon a drag to which ten horses were attached. Mr. J. Baker, of Peterborough, was the haulier. This is said to be the biggest oak ever cut in Suffolk.

THE OPEN-CHANNEL IN SANITARY DRAINAGE.

By C. E. GRITTON, A.M. Inst. C.E.

THE open-channel, straight and curved, both semi-circular and three-quarter round in section, as now made in beautiful glazed ware, is of the greatest value both for the bottoms of manholes to convey sewage, and also above ground for rain-water and clean waste conduits. But directly it is used above ground for carrying greasy or impure wastes, as from urinals, it becomes an intolerable nuisance, only rendered less in degree by constant attention and cleansing, in itself an insanitary and disagreeable operation. The leading feature in all true sanitary work is to reduce all fouled surfaces as much as possible, and the man who makes a scullery or pantry sink or a urinal discharge into a long open-channel which in

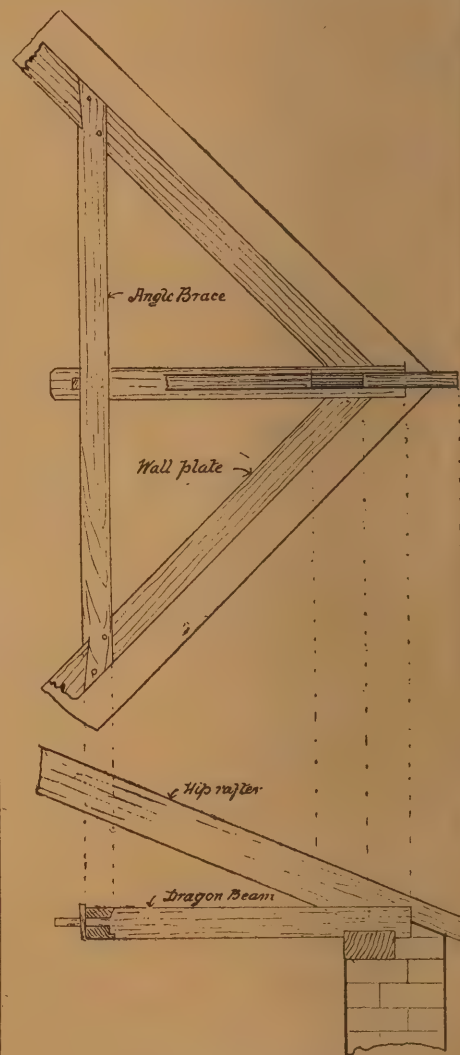


FIG. 42. A DRAGON TIE.

turn discharges into a gully, shows either his ignorance of or contempt for the above enunciated canon of sanitation. Curiously enough this insanitary practice is asked for in two such dissimilar and divergent districts as Croydon — which owes so much of its healthfulness and repute to sanitation — and Cambridge, which, to put it mildly, does not come up to the Croydon standard! It is too often overlooked that this bad custom is simply a relic of barbarism. In the days of our grandfathers such waste pipes were either directly connected to drains or made to discharge untrapped over traps (too frequently "bell traps.") Any smell arising in or from the trap is then promptly passed up the waste-pipe. In these more civilized days a smooth drawn lead trap is fixed immediately under the fitting, the waste-pipe of which then discharges into a self-cleansing circular

gully outside the house. No smell from the gully can pass up the waste-pipe, and the introduction of a long or short open channel with the object of preventing a thing which is already impossible is a work of supererogation, as well as an evil. Recently I have had to alter the drainage of an important Institution where a tremendous amount of cooking

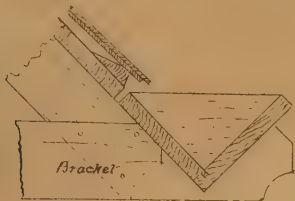


FIG. 43. ANGLE GUTTER.

is done, and consequently a vast quantity of grease accumulates, or I may now say used to accumulate. I found the scullery sinks discharging into glazed open-channels with much splashing and fouling of channels, walls, &c. Not satisfied with this large and entirely unnecessary fouled area, the authors of the scheme had caused these channels to discharge their offensive contents into large rectangular grease-traps which retained the grease upon the premises, and the sour smell of the putrifying grease in these channels and traps pervaded the place, the grease offending the eyes, and the stench the nose, in fact sickness and sore throats were attributed—no doubt justly—to the horrid effluvia. All this has been swept away. The sinks now discharge properly through ventilated and trapped lead waste-pipes (with expansion joints) into circular flushing-rim gullies in the open air, and large automatic flush-tanks discharge through flushing-pipes of ample area into these gullies

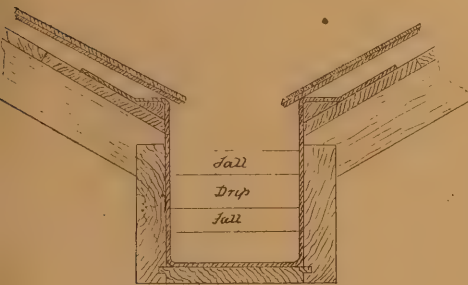


FIG. 44. TROUGH GUTTER.

at sufficiently frequent intervals to break up all the grease and sweep it through and out of the drainage system without trouble or attention. All smell has been removed simply by reducing fouled surfaces to a minimum. This is only another proof—among many—that this old-fashioned and sanitarily bad requirement should be removed from Sanitary Bye-laws.

Surveying and Sanitary Notes.

Writing on the sanitation of Gibraltar, a Daily Telegraph correspondent says: "In consequence of the construction of new docks, the existing sewer will be cut off at the New Mole, and a new sewerage tunnel, from the market place to Europa Lighthouse, commenced in 1896, will soon be completed, under the supervision of the resident engineer, Mr. Rowland Brotherhood, appointed by Major Tulloch, R.E., C.B. All drains and sewers along the route will be connected to it, and the sewerage of those on a lower level will be lifted into it by ejectors. Up to the present, 13,000ft. of tunnel have been finished, leaving only 3000ft. to finish the work. The tunnel is high enough for a man to walk through upright, and, when finished, as it will be in about six months' time, will be one of the finest concrete sewers in Europe. The system is, doubtless, a good one. The tunnel, which has a gradient of one in 1200, will be flushed from the highest point from a reservoir holding 20,000 gallons of sea water, lifted from the sea by centrifugal pumps. At equal distances flushing gates are fixed. The immense force of water thus sent through the sewer will carry all impurities before it straight out into the Mediterranean, where the tides will carry it to sea. At Camp Bay there is another reservoir to be constructed, for use in the dry season. Endless difficulties have had to be overcome in boring nearly the whole length of the rock, just below the level. The work reflects great credit on those concerned, and the present comparatively low death-rate may safely be predicted as being considerably reduced when the new scheme is in working order, and the further health of our soldiers and sailors insured.

ASTONISHING is the rapidity with which houses are being erected in Aldrington and north of the railway line at Hove. The Portland Road Board School was, but a few months since, in a comparatively isolated position, but it will, in a week or two, be surrounded by half-a-dozen new streets. Habitations are, in fact, being run up in the neighbourhood as if by magic. To the west of Rutland Road and north of Portland Road, several of the new rows of dwellings have been nearly completed, and when all have been finished some 350 homes, intended chiefly for the working classes, will have been added to the available dwellings in Aldrington. Houses are, in fact, being built from Glebe Villas and Portland Villas to within close proximity and north of the old parish church at Aldrington, and some substantial shops will shortly occupy positions on the north side of Station Road, Portslade, near to the railway station.

An interesting conference of the members of the North-Western and Midland Sanitary Inspectors' Association was recently held at the Birmingham Council House. Mr. W.

Urquhart (Crewe) presided. Mr. W. Wilkinson (Derby) opened with a speech on "Should sanitary inspectors be under local or State control?" He claimed for the officers absolute security of tenure of office, and urged the need of a central controlling authority, to which sanitary inspectors might have the right of appeal before dismissal. There were numberless cases in which sanitary inspectors had suffered appreciably from the fearless discharge of their duties, and they asked for some guarantee that men placed in such a responsible position should not be liable to dismissal without an impartial inquiry,

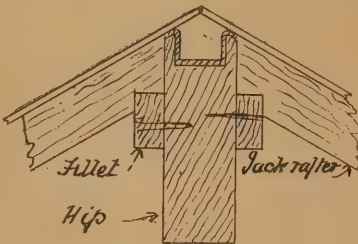


FIG. 45. SECRET GUTTER.

removed from local and vested interests. A resolution was passed suggesting reforms in sanitary legislation, which, amongst other items, was in favour of a National Board of Health, its president to have a seat in the Cabinet, and the certification of all inspectors. Mr. J. Hughes. (Rhyl), in seconding the proposition, observed that if the authorities at Maidstone had awakened to the real responsibilities of sanitary administration, there would have been no risk of a secondary outbreak of typhoid fever. A resolution was passed in favour of the superannuation of sanitary engineers and in favour of introducing a special Bill into Parliament. The conference discussed the question of unity of action, and visited the corporation interception department and sewage farm.

In connection with the important sewerage scheme for Armagh, the Sanitary Committee has selected a piece of ground in the townland of Drumcaine, which, it is understood, is



FIG. 46. SNOW GRATING.

admirably adapted for the purpose, and is approved of by Mr. J. Finlay Peddie, C.E., from an engineering point of view. The next step will be to obtain the approval of the site by Mr. Parry, C.E., consulting engineer, and when this has been obtained the provisional order to secure the usual rights will be applied for by the Board.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—				
Nov.	20	Ystradgynlais, Wales—School Buildings ..	Higher School Board ..	R. Morgan, Coelbreh-house, Onllwyn, via Neath.
"	20	Lisnaskea, Ireland—Workhouse Alterations ..	Guardians ..	J. O'R. Hoey, Clerk, Board of Guardians, Lisnaskea Union.
"	20	Llandrygaen, Anglesey—School, &c. ....	.....	J. Owen, Architect, Menai Bridge.
"	20	Bangor—Church Repairs ..	.....	H. Seaver, 128, Roya' avenue, Bangor.
"	22	Brentwood—Extension of Clerk's Office at Asylum ..	Visiting Committee ..	W. P. Gepp, Clerk, Chelmsford.
"	22	Great Harwood, Lancs.—Stables, &c.	Urban District Council ..	Briggs and Wolstenholme, Richmond-terrace, Blackburn.
"	22	Redruth—Hospital Ward ..	West Cornwall Women's Hospital ..	A. H. Jenkin, Solicitor, Alma-place, Redruth.
"	22	Ulverston—Higher Grade School ..	School Board ..	J. T. McIntosh, Cornwallis-street, Barrow-in-Furness.
"	23	Lewisham, S.E.—Coroners' Court and Mortuaries ..	Board of Works ..	Surveyor's Office, Board's Office, Lewisham, S.E.
"	23	Preston, Lancs.—Auction Mart, &c., at Cattle Market...	Corporation ..	Borough Engineer, Town Hall, Preston.
"	23	Lincoln's Inn, W.C.—Workhouse Enlargement ..	Strand Union ..	A. H. Maddocks, 15, Henrietta-street, Covent Garden, W.C.
"	24	Shoreditch—Rebuilding Wall, &c.	St. Leonard's Guardians ..	R. Clay, 213, Kingsland-road, N.E.
"	24	Downpatrick, Ireland—Additions, &c. to Asylum ..	Commissioners ..	H. Williams, Lunatic Asylums Board, Dublin.
"	25	Ton, Pentre—Infants' School ..	Ystradgynlwyd School Board ..	J. Rees, Hillside Cottage, Pentre.
"	25	Ballyhaire, Ireland—Two One-Story Cottages ..	Great Northern Railway Company ..	Engineer-in-Chief, Amiens-street, Dublin.
"	25	Burton-under-Trent—Retorts, Fire Bricks, &c.	Corporation ..	F. L. Ramsden, Manager, Gas Works, Burton-on-Trent.
"	29	Deal—Underground Convenience ..	Corporation ..	T. C. Golder, 16, High-street, Deal.
"	30	Forfar, Scotland—Post-Office ..	H.M. Commissioners of Works ..	H.M. Office of Works, Edinburgh.
"	30	Chatham—Post-Office ..	Postmaster General ..	Postmaster of Chatham.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Dec. 2	Enfield Lock—Alterations to School	School Board	G. E. T. Laurence, 181, Queen Victoria-street, London, E.C.
" 4	Aberystwith—Church Chancel, &c.		Rev. P. Williams, Abergeldie House, Aberystwith.
" 4	Pontefract—Hospital Buildings	Joint Hospital Board	Termant and Bagley, Architects, Pontefract.
" 6	Ruddish—Warehouse, &c.	Sheffield & Midland Railway Company	Engineer, Gt. Central Railway, London-road, Manchester.
" 6	Rodborough, near Stroud—School	School Board	E. C. Gough, 5, John-street, Aldelphi, London, W.C.
" 9	Kilkenny—Forty Houses, &c.	Corporation	W. R. Cleere, Executive Sanitary Officer, Kilkenny.
" 26	Buenos Ayres—Central Railway Station		Legation of Argentine Republic, London.
1898.			
Jan. 1	Copenhagen—Repairing Cemented Museum Walls	Corporation	F. Meldahl, Offices, Copenhagen.
No date.	Ashton-under-Lyne—Alterations to Stores, &c.	Co-operative Society	T. D. Lindley, Architect, Ashton-under-Lyne.
"	Batley—Houses		G. Hollies, Cross Bank, Batley.
"	Cardiff—Villa Residence, &c.		S. Rooney, 9, Quay-street, Cardiff.
"	Dewsbury—Walling		F. W. Ridgway, Architect, Dewsbury.
"	Grange-over-Sands—Semi-detached Houses		J. Stalker, 57, Highgate, Kendal.
"	Greenock—Two Lavatories		Master of Works' Office, Greenock.
"	Harrogate—Extension of Printing Works		Whitehead and Smetham, Albert-street, Harrogate.
"	Hurst, near Ashton-under-Lyne—Plastering		J. Heys, 196, Curzon-road, Hurst.
"	Killinure, Ireland—Rebuilding House, &c.		P. P. Metge, 9, Harcourt-terrace, Dublin.
"	Leeds—Two Houses		E. Wray, Spencer-place, Leeds.
"	Leeds—Plastering Thirteen Houses, &c.		Murgatroyd and Stevenson, Ashley-road, Burmantofts.
"	Patricroft, Lancs.—Hospital, &c.	Guardians	Worthington and Son, 46, Brown-street, Manchester.
"	Stapleford—Branch Stores	Co-operative Society, Limited	E. R. Ridgway, Architect, Long Eaton.
"	Woodham Ferris, &c.—Eight Cottages		—Brake, 18, Northumberland-grove, Tottenham, N.
"	Horncastle, Lincs—Memorial	Stanhope Memorial Committee	S. G. Overton, 2, Manor-house-street, Horncastle, Lincs.
"	Redruth—School Alterations	School Board	S. Hills, Architect, Redruth.
1897.			
Nov. 20	Edinburgh—Heating and Ventilating Hospital	Corporation	Superintendent, Public Works Office, Edinburgh.
" 20	Nelson—Construction of Bridge	Parks Committee	B. Ball, Borough Engineer, Nelson.
" 22	Blackpool—Electric Traction (Four Contracts)	Corporation	R. C. Quin, Corporation Electricity Works, Blackpool.
" 22	Bexley, Kent—Laundry Machinery, &c.	L.C.C. Asylums Committee	R. W. Partridge, 21, Whitehall-place, S.W.
" 22	Dreghorn, Ayrshire—Water Supply Works	County Council	W. R. Copland, 146, West Regent-street, Glasgow.
" 22	Hornsea, Yorks.—Waterworks	Urban District Council	P. Gaskell, Surveyor, Hornsea.
" 22	Stockport—Boiler, &c. (Three Contracts)	Baths Committee	Stott and Sons, 5, Cross-street, Manchester.
" 22	Cheltenham—Well Sinking		Chairman, Parish Meeting, Elmstone Vicarage, Cheltenham.
" 23	Birkenhead—Steel Boiler	Corporation	Ferry Manager's Office, Woodside, Birkenhead.
" 25	Cralova—Right of Water Supply	Town Council	Mayor's Office, Cralova.
" 26	Bridlington—Bridge Repairs	Rural District Council	S. Dyer, Architect, Quay-road, Bridlington Quay.
" 27	Long Framlington—Laying Water Pipes		W. J. Robinson, New Moor Hall, Long Framlington.
" 29	Rothbury—Water Supply Extension	Rural District Council	Granby Inn, Long Framlington.
Dec. 1	Llanelli—Construction of Dock	Navigation Commissioners	H. W. Spowart, Clerk, Town Hall, Llanelli.
" 1	London, E.C.—Locomotive Boilers	East Indian Railway Company	Offices, Nicholas-lane, London, E.C.
" 2	Cardiff—Service Reservoir, &c.	Corporation	C. H. Priestley, Engineer, Town Hall, Cardiff.
" 2	Sheffield—Gas-Lighting	Wales (near Sheffield) Parish Council	Clerk, Kiveton Park, near Sheffield.
" 6	Southampton—Pontoon, &c. (Two Contracts)	Harbour Board	E. C. Poole, 4, Portland-street, Southampton.
" 14	Bruges, Belgium—Harbour Works		Provisional Government, Bruges.
" 31	St. Gilles-lez-Bruxelles—Gasworks	Council	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway	Government	Central Directorate, Public Works, Porte Alegre.
1898.			
Feb. 28	Pernambuco—Port Works	Government	Brazilian Ministry of Public Works, Rio de Janeiro.
No date.	Manchester—Hydraulic Elevators		Maxwell and Tuke, 41, Corporation-street, Manchester.
"	Manchester—High-Pressure Water Meters	Waterworks Committee	Secretary, Waterworks Offices, Town Hall, Manchester.
1897.			
Nov. 22	Watford—School Furniture	School Board	Sedgwick, Turner, and Oddie, Solicitors, Watford.
IRON AND STEEL—			
Nov. 23	Newcastle-on-Tyne—Various Stores	Town Improvement Committee	City Engineer, Town Hall, Newcastle-on-Tyne.
" 25	Hull—Steel Girder Tramway Rails, &c.	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 27	Dublin—Miscellaneous Stores (59 Contracts)	Great Northern Railway Co.	T. Morrison, Secretary, Amiens-street Terminus, Dublin.
" 29	Dublin—Various Stores (44 Contracts)	Great Southern & Western Railway Co.	Storekeeper, General Stores, Inchicore, Dublin.
Dec. 3	Warrington—Stores (19 Contracts)	Cheshire Lines Committee	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
No date.	Gateshead—Stores	Tramways Company	Manager, Gateshead and District Tramways Co., Gateshead.
PAINTING AND PLUMBING—			
Nov. 24	Burnley—Painting, &c., Chapels, &c.	Town Hall, Baths, Cemetery Committee	Borough Surveyor, Town Hall, Burnley.
" 26	Delvin, Ireland—Plumbing Work	Guardians	J. King, Clerk, Delvin, Ireland.
" 29	Castlecomer, Ireland—Public Fountain	Guardians	J. Walker, Architect, Castlecomer, Ireland.
No date.	Bury, Lancs.—Beautifying Chapel	Trustees	J. Holt, 28, Canning-street, Bury.
"	Sutton-in-Ashfield—Painting Bridges, &c.	Great Northern Railway	W. H. Hutchinson, Contractor's Office, Sutton-in-Ashfield.
ROADS—			
Nov. 20	Paignton, S. Devon—Road-Making, &c.	P. E. Singer	R. J. Beadon, 165, Manor-street, Clapham, S.W.
" 20	Birmingham—Road Works	Public Works Committee	J. Price, City Surveyor, Council House, Birmingham.
" 20	Blackwall, Derbyshire—Road Works	Rural District Council	H. Silcock, 20, Westgate, Mansfield.
" 23	Shoeburyness—Making-up Roads	Urban District Council	H. Harris, Clarence-street, Southend-on-Sea.
" 24	Shoreditch—Paving, &c.	St. Leonard's Guardians	R. Clay, 213, Kingsland-road, N.E.
" 26	Hull—Mosaic Pavement	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 29	Gore Farm, near Dartford, Kent—Road Repairs	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
No date.	Burnley—Flagging		G. H. Pickles, Borough Surveyor, Town Hall, Burnley.
SANITARY—			
Nov. 20	Chorley, Lancs.—Supply of Disinfectants	Corporation	J. Mills, Town Clerk, Chorley, Lancs.
" 22	Barkisland, Yorks.—Pipe Sewer, &c.	Urban District Council	J. B. Holroyd, Surveyor, Council's Offices, Barkisland.
" 22	Whitefield, Lancs.—Sewering Works	Urban District Council	T. Thorp, C.E., Knowsley-road, Whitefield.
" 23	Aston Manor—Construction of Sewers	Rural District Council	H. Richardson, Engineer, Council House, Aston Manor.
Dec. 1	Launceston—Sewerage and Sewage Disposal	Corporation	Town Clerk's Office, Launceston.
No date.	Bardsley, Lancs.—Draining	Limehurst Rural District Council	G. E. Kettlewell, Union Offices, Ashton-under-Lyne.
"	Limehurst—Draining	Rural District Council	S. E. Kettlewell, Surveyor, Ashton-under-Lyne.
TIMBER—			
Nov. 20	Newcastle-on-Tyne—Timber, &c.	Tyne Improvement Commissioners	Commissioners' Engineer, Bewick-st., Newcastle-upon-Tyne.
" 23	West Ham, E.—Hard Wood Paving	Council	L. Angell, Borough Engineer, Town Hall, Stratford, E.
No date.	Londonderry—Creosoted Sleepers	Londonderry & Lough Swilly Railway Co.	F. Dawson, Secretary, Shipquay-st.-buildings, Londonderry.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 25	Edinburgh—Schemes for Heating, &c., Hospital		Public Health Committee.
Dec. 6	London, E.C.—Designs for Jubilee Medal	£20, £15, £10	City Corporation.
" 15	Dorking—Designs for Infirmary	2nd Prize, £15; 3rd Prize, £5.	Union Guardians.
" 16	Menal Bridge—Designs for Landing Pier	£40	Urban District Council.
" 31	Bootle—Plans for Fire Station, &c.	£52 10s., £26 5s.	Bootle Corporation.
1898.			
Jan. 8	Belper—Scheme for Water Supply	£15 15s., £5 5s.	Rural District Council.
" 31	Leicester—Designs and Tenders for Motor Vehicles for Collection of House Refuse		Sanitary Committee.
Feb. 15	Port Elizabeth, S. Africa—Designs for Public Library	£105, £52 10s.	Public Library Committee.
May 1	Belper Scheme for Sewage Disposal	£52 10s., £26 5s.	Urban District Council.



An Architectural Causerie.

Surbiton! PLEASANT Surbiton upon the Thames, not to be behind-

hand, has duly aspired to a place in the annals of architectural hocus-pocus; and has found it. The precise details of these last junkettings of District Councillors will be found stated in another page; here one has particularly to complain of local big-wigs, and the ponderous nature of their big-wiggedness. If, as seems now pretty well established, public competitions are to be instituted and conducted by men who keep one eye shut and their tongue in their cheek, throughout their transaction with architects, one feels entitled to ask and expect that they shall put a little originality and brightness into their enterprise. As it is, the thing is growing wearisome; it begins to pall. The gull is always on the same monotonous lines; the bunkum is in all cases of the same matter and quality. The tale is always the same, and it is now grown tedious to hear by repetition. With all the practice they have had in the art of "houssing," the Town Councillor of England should be able to show a little more briskness and daring. "Tottenham" truly was refreshing, and promised well; it was a thought sordid, but it promised well. "Let us wash our hands of the whole competition and have another" was good; and "Dear Sir,—The Board have decided to return the designs to the various competitors, and to have a fresh competition" is even better; but now comes "Surbiton" on the old dull, humdrum lines, with the same dingy, uninspired old tale again re-told, and hardly an incident by which one can identify it in the future, or an episode by which one can distinguish it in the present from the vulgar crowd of municipal architectural competitions in general. In the whole narrative there are but one or two incidents which stand out from the dullness of the bulk, and linger fleetingly in the mind. The most remarkable of these is the fact that the Council dissented from its assessor's decision before the sealed envelopes were opened. This is a quaint and curious irregularity on the part of a District Council. It is usually only after the contents of the envelopes have been revealed, that the town councillor attains to that confidence in his discretion and taste that braces him to oppose the award of the assessor. It would seem as though the act of breaking those seals freed a talisman, which instantly cleared the councillor from perplexity and doubt on every question of Architecture, and yielded him instantly an assurance of view upon debatable points, that the best qualified specialist might envy. Since, by his own showing, the opening of a sealed envelope qualifies a town councillor, beyond all question or doubt, in the issues and technicalities of plan and elevation, why is it that he pays a heavy fee to a professional assessor? This strikes one as an interesting speculation. It would hardly seem possible that the town councillor employs the assessor because, as an inducement to intending competitors, he has promised to do so in the "Conditions of Competition." There is no evidence to lead one to suppose that an ordinary Municipal Council recog-

nised any such obligation. Another particular in which the story of Surbiton wins one's appreciation relies on the fact that it has afforded the public the pleasure of an introduction to the idiosyncrasies of Mr. Palmer. Mr. Palmer has made a most plucky attempt to embalm himself in the amber of the architectural world's derision. One is inclined to believe that he has succeeded. Standing officially before his fellow councillors he is reported, in the Surrey Comet, to have broken breath in saying that "he objected to his responsibility, as a member of the Council, being thrown on the shoulders of the assessor. He did not think they should take too much notice of specialists or experts, for they were dangerous people to follow.

Councillors" of remoter Britain. Probably this is the solution. Mr. Palmer does well to guard his common sense; it constitutes a proud prerogative. When one comes to consider, not the moral obligations of the case, but the mere literal rights and titles of the municipal representatives of Surbiton, the matter seems to focuss in the wording of "clauses 1, 4, and 5 of the conditions of competition." They are as follows: "1. The Council have appointed Mr. E. W. Mountford, F.R.I.B.A., to act as Professional Assessor in advising as to the conduct of the competition and selection of designs." "4. The author of the selected design will be employed to carry out the work, subject to the condition that he be a bona-fide architect," &c., &c. "5. If



"BLEAK HOUSE" GATE. FROM A PHOTOGRAPH.

They should use their own common sense." One is glad Mr. Palmer has recommended his terms as being those of common sense. One might otherwise have overlooked it. Even now it is hard to realise that Mr. Palmer's sense is really at all common; nothing is, in reality, so uncommon as common sense. No doubt, however, it is as he states. One is therefore sorry to have to say that Mr. Mountford (the assessor) does not agree with Mr. Palmer on the subject of plans. It is another fond belief shattered; hitherto one had been convinced that Mr. Mountford was an adept among adepts in planning. One had, however, reckoned without one's Mr. Palmer. Perhaps a man may be an adept among adepts and yet not be an adept among the "District

by any sufficient reason the design placed first be not carried out, then the design placed next in order by the assessor shall have priority of consideration, and failing that also, the next, and so on." One has added the italics here to emphasise the terms particularly bearing on the case. The word "advising" in Clause 1, though its literal value indicates that the Council was not bound to hold by any award of the assessor, is no more than the "approval of Council" with which every committee must, in reason, protect itself. The statement as to winner of the award carrying out the work is explicit. The words any sufficient reason, in Clause 5, one cannot think were fairly interpreted to cover the unsubstantiated caprice of the Plans-Sub-Committee—cer-

tainly not the common sense of Mr. Palmer. The general dissatisfaction of the twenty-six firms who competed establishes that the conditions were not interpreted in the sense in which they were read—or, one would venture, written. On the whole, however, one does not deplore the inequitable proceedings of the ordinary Town Council so much as the fatuity of architects in submitting to it. To sell one's birthright for a mess of pottage is justly considered to be the height of folly. One observes, however, that the architect also enters in competition, though he voluntarily sells his birthright—in yielding up his title to payment for the work he does—yet very rarely ever gets the mess of pottage for which he sells it. B. C.

An Artistic Architect and his Office.

TAKEN altogether, he was not a half bad chap; he was not really an architect, however, except from a courtesy he habitually extended towards himself, but which an erring public failed to follow up with the alacrity he would have desired. His limited correspondence came to an office located on the topmost floor of a large block of flats in Devonshire Avenue, and here, when saner people were at rest, he might have been found at work forming a number of pigeon-holes, which, except by mistake, he never used, or drawing plans suitable for the ideal client that only existed in his vivid imagination. The office was fairly roomy, about twenty by twelve, probably, and was entered from a doorway on one of its shorter sides; at the further and opposite end was a window occupying nearly the whole width, below it was the architect's drawing table. A bookcase, reaching from the floor to about 7ft. high, filled in one of the long sides, that opposite being partly monopolised by the fireplace; on either side were hung portraits of Thoreau and Ibsen, and over the mantelpiece Mary Woolstonecroft and Karl Marx. The books that lined the dusty shelves of his deal bookcase indicated his limitations. Whitman was the only poet adequately represented. In addition to the works of Whitman was a small volume of poems by Shelley squeezed in between "Das Kapital" and Schopenhauer's "Counsels and Maxims," but it had been purchased out of curiosity rather than from a real interest, previous to a lecture by a woman friend who regarded Shelley in the light of a second saviour of mankind. The volume had been religiously studied, but without any result further than to excite his anger that a man should have written such sentimental twaddle, as he called it—a habit of mind common to others besides this artistic architect, when they fail to comprehend. Buckle's "History of Civilisation," ten or twelve volumes of the social science series, several books by Hardy and Meredith, a well-thumbed Bible, and a volume or so of Zola, showed his predilections in literature. His architectural books were numerous, and ranged from "Egypt under the Pharaohs," by Brugsch, to "Town Life in the Middle Ages," by Green. Copies also of Shaw and Nesfield's sketches on the Continent, a few architectural plates, illustrating modern work, by Webb, Shaw, Sedding, and McClaren, and one drawing of a beautiful little girl, designed by Chas. E. Dawson, pinned against the wall. To enter his office and fail to offer up incense to these illustrations was considered nothing short of an insult, and it was not infrequent for the artistic one to drive an inoffensive visitor from the room down the long flights of stone steps, sending after him a storm of coarse invective that might have been equalled, but seldom surpassed, by a bargee or navvy. No visitors had as yet come to see him this evening, and since the

departure of the little office boy with red hair, who had a passion for doing enormous perspectives, its occupant had sat more or less idly next the drawing-board on a stool somewhat out of repair. The lamp on his right, turned low to prevent its smoking, burned dimly, and the fire in the grate suffered from lack of coal and a want of attention. His receding forehead and chin, outlined against a sheet of drawing-paper on the left wall, seemed to emphasise and illustrate the Darwinian theory; doubtless at some remote period his ancestors were intelligent members of the simian tribe. This curious facial relationship was a subject for amusement among his friends, and was not so irritating to himself as might have been supposed—a certain aloofness of mind, combined with some sense of grim humour, enabled him to trace this resemblance in company with his amiable friends. His likeness to Amenophis IV., an Egyptian king, was unmistakable, and like him also, he was subject to attacks of the revolutionary spirit; a weakness which in the king's case was traced by his contemporaries to a feeble digestion and immoral tendencies, became in the architect merely a fondness for mild tea and vegetables, interspersed with an occasional orgie of sausages and mashed—sure and certain signs of a revolutionary bias. A sound of footsteps and laughter on the stairs brought him out of an idle reverie; another moment and the office door was pushed ajar unceremoniously, and the opening was partly screened by the spare figure of a woman. A face intellectual, a small mouth just now quivering with suppressed laughter, and a pair of eyes of uncertain colour, took in the whole of the room before the other fighting women—for such they were—could gain an entrance. The architect's office was now invaded by five women. The owner's melancholia and bored expression vanished, and although he simulated an indifferent air to prevent any too sudden and startling endearments, he was inwardly chortling over their temerity and the unbusinesslike atmosphere of his room. That his cigarettes should be purloined, and his drawing den turned into a smoking room by a group of enterprising Socialist women was not altogether displeasing to this whimsical young man. The smallest of them, the possessor of a fair and open face, sneaked his lamp, another coolly tickled him, and the others occupied their time by upsetting his bookshelves. It was now late, and wishing to work at a design for some embroidery, he turned them out without apology, not, however, before giving them an invitation to come and see him again, and also a design for a very impossible house for a client that had not yet arrived upon the scene.

G. LL. M.

The Illuminated Address.

If there be any occasion in which a written communication calls for good decorative treatment in its accessories, it is surely when it takes the form of an official address stalking through its phrases with the stately pomp and circumstance, warranted by centuries of use, that we consider the proper form in which to congratulate those in high places. More especially when such an one is the actual head of the realm might we expect to see our very best put into the arrangement and decoration of the address. One recurs to one's favourite page of the Kelmscott quarto lying on the table or to the book-plates of a discriminative friend, or is, perhaps, reminded by the poster at the corner of the street how far we have attained in the possibility of setting forth some simple statement in a manner that imparts to it an interest it otherwise lacks; then, letting one's

imagination dwell on the subject, mental pictures rise up of compositions endowed with all the beauties of gracious line and glowing colour—compositions in which fine massive colouring gives an excuse for decorative accessories full and rich in tone and massed so as to add dignity to the inscription. Alas for our ideals! one brief visit to the Imperial Institute dispels them all; here, if anywhere, would surely be found the best that the nation can do; here should we see some, if only a few, that rise to a high pitch of decorative interest. Down the interminable row one goes, hoping to the last that somewhere will be found a work rising above mediocrity. No, not one, while the great majority are of a class beneath criticism. Here, for instance, is an example bearing the initials of a celebrated R.A., whose conception of a suitable decoration for the purpose consists in placing a parti-coloured angel at the top, from whom meander pink ribbons that wobble aimlessly down each side of the inscription. Near at hand may be seen another displaying originality of a no less meretricious order; a third, from one of our seats of learning, is saved by the omission of ornament altogether, and is consequently at least as satisfactory as a well-engrossed mortgage deed. These, however, are the exceptions. In nine cases out of ten these documents display not the semblance of an idea of any artistic value. Their designers seem to have been trained, Heaven knows where, in the fixed idea that such things must be, above all things, mediæval, and that the mediæval could be very easily rendered by the use of straggling ornament of certain stock forms depicted in such lovely colours as vermilion, emerald green, ultramarine, &c., &c. It is an extraordinary thing that out of the enormous number of addresses sent up from all parts of the country, not one should have fallen to the lot of someone who could handle it in a manner representative of the time, and that, consequently, the three or four contributed from Germany, though not treated in a particularly appropriate way, are undoubtedly far superior to those of our own country. To anyone judging by these works only, it could not but appear that we had reached the very lowest depths of artistic degradation, and that we have, moreover, in some insidious way, destroyed all the vigour in the formerly very individual work of our Indian Empire. It is not encouraging, when one reckons up all that has contributed to our celebrations during the present year, how infinitesimally small a portion belongs to the various arts that are supposed to have an important place in our national life.

H. V. L.

"BLEAK HOUSE" GATE.

AT the end of a narrow alley in the purlieus of Drury Lane one may come across the door that figures in our front-page illustration. There would be but little to notice in it but for the fact that it is the gateway of the tiny graveyard to which Dickens, in his "Bleak House," makes pathetic reference, and which is brought into prominence in the transpontine melodrama founded on that novel. Dickens probably knew his London better than any other among its multitude of citizens; and that he found his way to this out-of-the-way spot, among the crowded tenements by which it was then surrounded, shows that his topographical knowledge was of no superficial character. Now the houses have gone, the weed-grown graveyard has become a well-kept playground, and the door that was formerly ruthlessly closed, swings open to admit the children from the crowded streets into the little breathing space beyond. Soon the exigencies of a more comprehensive scheme of improvement will sweep all away, and but a memory will remain of a feature that had a place in the literature of our century.

CHIMNEYS.

BY CHAS. W. T. TOMLINSON.

(Continued from page 324.)

WHETHER it is a fact or not, it is occasionally remarked that we cannot build a good chimney nowadays, and it is certain that smoky chimneys were never so common as they are to-day, and "chimney doctors," patent pots, &c., were never so much in evidence. Architects are being continually troubled with this everlasting problem of the smoky chimney, and they cannot always successfully grapple with the difficulty. The simple theory of the chimney comes to this: air, like nearly everything else, expands with heat and contracts with cold. Therefore, hot air is lighter than cold air, and has a tendency to rise. So the air gets heated in passing through the fireplaces, and rises up the flue, carrying up the smoke with it. (A fireplace opening should not be made too high, as the air might then cool before getting up the chimney.) Allowance, however, must be made for unfavourable situations. Take a case where a chimney is near to an high building—say on its west side. When a strong wind blows from the east, it will strike against the loftier building, and turn upon itself in gusts and eddies, thereby often sending a cloud of smoke down the flue. For this reason a chimney should, if possible, be carried up higher than any building near, and, on the same ground, a stack rising from the eaves of a roof should always be carried a foot or two higher than the ridge. But it is not possible, in every case, to carry a chimney stack higher than the surrounding buildings. If the case occurs as before-mentioned, of a high building next a low one, M. Viollet-le-Duc, in one of his works, says that the flue of the latter should bifurcate or divide into two, as shown in sketch. Then, he argues, when the wind happens to send a gust down one flue, it would only have the effect of forcing a big cloud of smoke out of the other, as it is hardly possible the wind would blow down both flues at the same moment.

The same author also speaks of the ordinary revolving cowl with only one opening, for, he says, a sudden gust or change of wind may blow full down it with exceedingly unpleasant results. If the cowl has two openings this would be avoided, as then the wind would blow straight through it. He cites, as a practical example of this theory, the town of Geneva, which is built against a hill side. The population are little troubled with smoky chimneys, as their flues are all fitted with cowls with double openings.

As before mentioned, it is always best for a chimney to pierce a roof at the ridge instead of the eaves. It is also much more economical as a rule, and it offers so much less resistance to the wind, being comparatively short compared to the long thin shafts we often see rising from the eaves. A wrought-iron stay-bar, fastened to a purlin, is very often required to prevent the latter type of stack from being toppled over by a strong wind.

With regard to the patent cowls, pots, &c., of to-day, their name is legion, and it is impossible to attempt any description of them. Of course, a chimney may smoke for other reasons than contrary winds; lack of draught, &c., an obstruction in the flue, though the latter rarely occurs.

There is a grain of comfort, however, in the fact that even the jerriest of all jerry-builders could not, if he tried, build a chimney that would always smoke, for in certain favourable winds even the most defective of badly-constructed flues will occasionally act properly.

With reference to the construction of tall factory or mill chimneys, this is a point which is a speciality in itself, and can hardly be considered as coming under the head of my subject, so can only just be touched upon. These chimneys need very heavy and substantial concrete foundations. They are always built with a batter or slope inwards, so as to make them more stable. Generally, the first 40ft. or 50ft. of their height is lined with fire-brick, on account of the intense heat. In a great many cases the lowest portion is

built in two parts, viz., an inner shell of fire-brick, and the outer casing or chimney proper, with an air space of perhaps 18in. between the two. The two portions usually unite at a point 50ft. or 60ft. from the ground. The thickness of the walling of a tall chimney is settled by the local bye-laws and by the Building Act, being fixed at a certain minimum thickness for the lowest 50ft. or so, then another minimum for the next portion, and so forth until the top is reached.

The subject of factory chimneys is one about which much might easily be written; in fact, Rawlinson and other eminent engineers have published large and exhaustive treatises upon their construction and design.

ARTISTIC.

Very few attempts are made to give a chimney stack an artistic appearance. Surely nothing could possibly be more unsightly, not to say hideous, than the ordinary square, heavy, brick stack, with its hard, brutal outlines and its apology for a cornice, consisting of about three courses plain oversailing. Then this most unsatisfactory object is finished with some strange-looking, almost grotesque, chimney-pots, probably one of the flues being treated to a "tall-boy" to remedy its smoking.

Surely something might be done to render these so very necessary objects a little more picturesque than they usually are, and it is gratifying to note that our leading architects do not consider the design of a chimney as a detail unworthy of their attention. An accompanying sketch represents a stack of one of the latest public buildings in Leeds, and most certainly a stack like this could not be termed an eyesore by even the severest and most fastidious of critics.

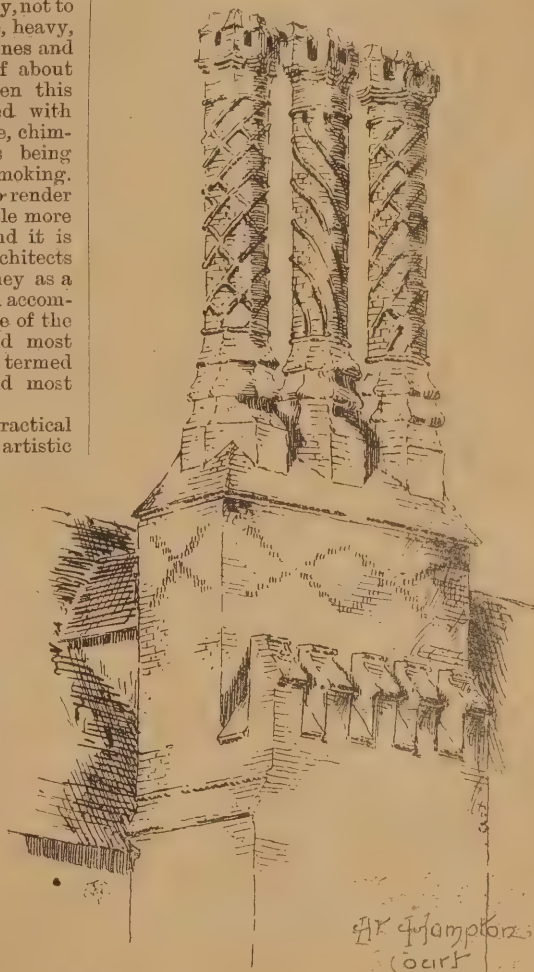
Besides being better for all practical purposes, it is certainly preferable on artistic grounds that the flues be gathered together, for it looks decidedly better to see one or two substantial stacks than to gaze upon an epidemic of single shafts breaking through the roof at all points. The effect of a chimney stack depends in a very great measure upon the plan. T or L shaped plans are more stable in character and much more pleasing in appearance than the usual type of three or four flues in a row, though hundreds of buildings are erected annually entirely destitute of any other idea of arrangement. The plan of a stack of four flues might be worked out somewhat in the manner suggested by the sketch, thus giving a little variety to the different faces.

An old brick chimney at Rye House has its plan formed of four semi-circles with angles between. In elevation the shaft is encircled spirally, each spiral performing about two and a-half revolutions. The base and cap are of cut brickwork. The total height of the chimney is about 13ft., and it is a most interesting specimen of this class of work. The Rye House is historically associated with a plot formed in the year 1678. It was termed the "Rye House Plot," and its object was to assassinate King Charles II. at the Rye House, where he was expected to tarry on his return from the Newmarket races. Fortunately the plot was discovered and frustrated.

Square chimneys set diagonally are to be found in many of the fine old brick halls of England. Exquisite examples may be seen at Severn End and Hampton Court. Hexagonal and octagonal shafts always look extremely well. Examples are shown in the illustrations of this form of treatment. It is always wise, however, to have purpose-made bricks for the angles and moulded work, &c., as a chimney shaft is, as a rule, in far too exposed a position to allow of the use of cutters or rubbers. These latter should only be used in those portions of a building which are fairly well sheltered. Special bricks, suitable for all kinds of ornamental work, are made by Jas. Brown, of Cannon Street, London, and good examples of their use may be seen in his illustrated catalogue, "Brick Ornament and its Applica-

tion." Where a chimney stack occurs at or near the eaves of a roof, the sudden break in the roof-lines often makes the shaft look taller and thinner than it really is, and in other ways jars upon the artistic temperament. When the chimney springs exactly from the eaves this break can be avoided by carrying up the brickwork and breaking it off gradually in a succession of little gables, as shown in the illustrations.

A chimney stack is often a feature in the gable of a Gothic building, and this method of treatment is much in vogue to-day. A chimney at a gable end makes a very picturesque combination by corbelling it out, say at the first floor level, and thus breaking up and giving more relief to the wall surface. A good modern example of this method of treating a shaft is to be seen at one of the gables of the



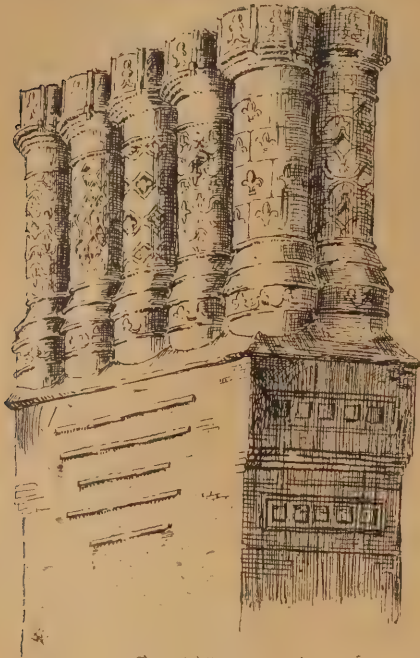
"CHIMNEYS." SKETCHED BY C. W. T. TOMLINSON.

new Sheffield Municipal Buildings, designed by E. W. Mountford.

In reference to the question of the height of a chimney stack, if an old model be followed, it should be remembered that the old bricks are much thinner than modern ones, and due allowance should be made for this in calculating the number of courses.

The above should be particularly in mind when designing the cap, as its effect depends in a great measure upon its proportions compared with the shaft. The cap, being, as is usually the case, the highest point of the building, should be designed not in elevation, but in perspective, as it would appear from the ground, and a little more height should be given to it than actually looks necessary in the geometrical elevation.

So far I have only mentioned in this section shafts of brickwork. Stone stacks should always have a plinth course, this giving them a much more stable appearance. A simple cornice (which, however, should always be weathered and well undercut) and plain stone cap is perhaps the best and neatest method or



East Bagham Hall

"CHIMNEYS."

SKETCHED BY C. W. T. TOMLINSON.

finishing the stack, though with a richly-moulded cornice, elaborately carved swags, &c., as are sometimes seen, a stone chimney-shaft may be enriched to almost any extent.

I give a sketch or two of some typical Venetian chimneys. Their appearance is most quaint, and certainly not unpleasing. They are most often built in single stacks, but sometimes in two or three. Venetian chimneys are usually built of brick, and overlaid with pinkish-white stucco. The big funnel tops shown in the first sketch will be recognised as being commonly shown in the pictures of Carpaccio, Billini, and other great Venetian painters. Perhaps, however, after all, the most picturesque chimney is the one which we sometimes come across on an old country cottage. Without any ornament or "features" whatever, some of these rustic stacks have a beauty and quaintness that is peculiarly their own, and, besides, they seem so suited to their position.

A chimney should not be masked. John Ruskin, in his "Seven Lamps of Architecture," dwells much on the lamp of Truth, and affirms that an object should indicate its own proper and legitimate use. Therefore, a chimney-shaft should not pretend to be a tower or turret. Chimneys may possibly, to many people, seem only a detail—that is, of course, with reference to their artistic treatment; but details are all important, for as "the greater includes the less," so inversely no building can possibly be satisfactory until the *total-ensemble* of the whole be made as perfect as mortal hands can make it.

Perhaps, in the dim and distant future, chimneys may be looked upon as the relics of a barbarous age, before electricity took the place of steam as the leading motive power, and chimney pots may only be seen in museums, where our posterity may observe them with as much curiosity as even we now exhibit to gaze upon an Egyptian mummy.

The fort at Coomassie is being built of granite found in the ruins of the King's palace, and of bricks made on the spot. It will be stronger than anything in the interior of West Africa.

Menelik, of Abyssinia, is going to treat himself to a new throne of sculptured oak with gold incrustations, which is being made for him in Paris, from which capital he has likewise ordered *nouveautés* in the shape of silken embroideries, and other objects of decorative art.

CHURCHES AND CHAPELS: THEIR DIFFERENCES OF OBJECT AND CONSTRUCTION.*

BY THE REV. OSWALD J. REICHEL, M.A., F.S.A.

THE difference here intended between churches and chapels is the difference between parochial and non-parochial places of worship, which hence has to do with the parochial system and its needs. Discussing the origin and use of the term "church," it is used but only in a secondary sense of a building. The primary meaning of "ecclesia," in pre-Christian times, is an assembly of the citizens duly summoned by the crier. As a matter of fact, Christians are not known to have had any special buildings for worship before the third century. Lampridius relates that in the time of Alexander Severus (A.D. 222-235) the Christians had erected a building for religious purposes on a waste piece of ground at Rome. Eusebius, the historian, speaking of the earliest Christian building which existed in Antioch, in 270 A.D., calls it "the House of the Church." The same authority states that about 285 A.D. Christians had erected spacious church buildings from the foundations in all cities, and that these were destroyed in the Diocletian persecution. He also refers to "houses of prayer," a "basilica" or Royal hall—a word used by our own Council of Chelsea in 816 A.D. Basilica, indeed, appears to have been the word most frequently used to express the fabric of a bishop's See or collegiate church. For those less than cathedral or collegiate churches there were many names. In Rome, "titles"; in the East, prophets' houses, martyrs' houses, Apostles' houses. In the West, the common name for lesser buildings, and one which was applied to all churches of private foundations, was oratory or prayer house. Cnuts law, in 1017 A.D., refers to a head church, a middling church, a lesser church that hath a burial ground, and a country church.

DISTINCTION BETWEEN PUBLIC CHURCHES AND PRIVATE CHURCHES.

Previous to the tenth century, there were, perhaps, no public buildings for religious worship which were not presided over by a staff of clergy—a college of presbyters and deacons where the services of religion were solemnly and regularly performed—and the discipline of the Church was publicly administered by competent officials. The "head churches" we shall style cathedrals, and the "middling" collegiate or prebendal churches; the "lesser" we would call chantries or chantry chapels, and the "country churches" private oratories. Mabillon relates that at Rome, in the ninth century, there were churches of four kinds, viz.: Patriarchal, Titular, Diocesan, and Oratories, or Cemeteries. Of

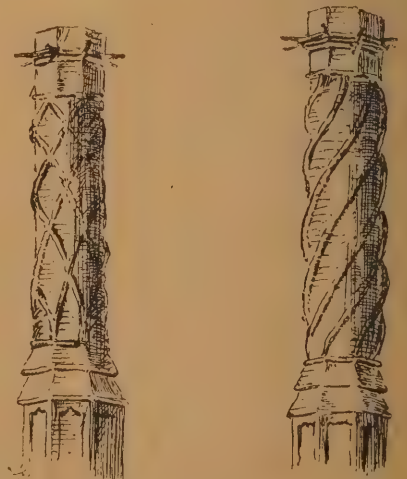
PATRIARCHAL CHURCHES,

there were five principal ones, viz.: The Latheran, the Vatican, St. Maria Maggiore, St. Paul without the walls, and St. Lawrence without the walls, besides three others of lesser rank, viz.: St. Croce, St. Agnese, and St. Maria dei Martiri. The twenty-eight titular churches were those to which certain priests and their attendants had not been attached. The diaconal churches were hospitals and poor houses in which service was performed; oratories and cemetery chapels were private structures, in which no regular provision of service was made by the Church. Proceeding to describe the evolution of the building: The house of a well-to-do Roman citizen in classical times consisted of an open courtyard, entered from the street, with a fountain in the centre and a covered portico running all round. At the far end the portico opened into a large hall—the basilica, properly so called—corresponding to the great hall of the mediæval English house. Adjoining it was a bath chamber, and around it numerous rooms of all

sorts. Such a house readily lent itself for Christian purposes. The open courtyard became the atrium, where gathered the penitents and hearers, such as still exists in the Church of San Clemente, at Rome; the fountain became the stoup, used to wash off all defilement before entering the large hall; the hall became the Christian basilica, the bath chamber the baptistry, and the various rooms served as a residence for the bishop and clergy, places for vestments and storerooms, for offerings and gifts, the school, the library, and the scriptorium or writing-room. The large hall was dignified into the name of the Lord's House. The arrangement of the great hall before the tenth century was usually oblong in shape, and constructed to face the East, because the East is a reminder of Christ, the True Light who brings back the day. It was divided into two sections, one for the clergy, called the presbytery or tribunal, or altar-place, the other called the body of the church, for the people. In the apsidal end of the presbytery, on a raised semi-circular dais facing the people, stood seats for the presbyters; in the centre, on a higher level, the bishop's stool. In the chord of the apse, between the seats of the presbyters and the platform, called the solium, stood the altar, separated from the rest of the building by a lattice-work screen or cancelli, the iconostasis of the Greek Church, the original mediæval rood-screen. Behind the screen were curtains, closed during Lent altogether, and at other seasons during the time of oblation. Some churches, however, were round, others octagonal, or in the form of a cross. Although there were cases of the altar being in other positions, orientation other than East was very unusual. In front of the solium rose another platform under the dome, which served as a footpace for the ambon, pulpit, or reading-desk, and on this platform the singers were located. In the

CRUCIFORM CHURCHES,

built after the tenth century, the reader and singers were placed with the other clergy in the part which forms the head of the cross, the screen being brought forward to accommodate them. This additional space was called the choir or chancel, and the tie beam, which could now be introduced into the building without spoiling the effect, was utilized to place on or suspend from it a cross, whence it was called the rood-beam. Behind it a gallery was usually constructed to serve the same purpose as the earlier platform and ambon, and from this gallery or rood-loft the epistle and gospel was read. The other section of the church was also divided into two parts, one called the body of the church, and the other the vestibule or ante-chapel, but generally the ferule or fennel rod, because discipline was there administered with a fennel rod. The vestibule was entered by the great or



Fron College

"CHIMNEYS."

SKETCHED BY C. W. T. TOMLINSON.

* Extracts from a paper recently read before the Devon and Exeter Architectural Society.



Some Cottage Chimneys

"CHIMNEYS." SKETCHED BY C. W. T. TOMLINSON.

principal door, but in the wall which separated the vestibule from the nave were three doors, the central one being termed the Royal door, because it opened into the Royal hall. The door which admitted from the solium to the presbytery was called the Holy door. None was admitted to the body of the church except the faithful, separate portions being set aside for men and women, for matrons and maidens, for monks and seculars. The vestibule was open to heathens, heretics, hearers, and penitents, but not to those under greater excommunication. The baptistry was originally distinct from the central hall, and consists of two parts; (1) the vestibule in which the renunciations were made, and (2) the place of the immersing basin. There were usually two vesting rooms, the larger one being the treasury, in which the vestments, vessels, and property of the church were kept, the smaller one serving for vesting. In contrast with these public churches were private prayer places—the chosen places of assembling in time of persecution, and which were the sleeping places of the dead—some called prophetries, others apostelries, others martyries. But although the object of these cemetery chapels—whether excavated in the rock underground or above ground—was private prayer and private offerings in commemoration of individual saints departed, yet in times of persecution they were often used for public services; and when persecution ended, continued to be so used. The buildings over some of them developed into great basilicas, notably the Church of the Holy Sepulchre at Jerusalem, that of the Apostles at Constantinople, and those erected by Carstantine near the oak at Mamre and at Heliopolis in Phœnicia. When Christianity was first introduced among the Saxons of this country it came as a missionary church. Canterbury, Rochester, London, and Winchester in succession to Dorchester and York, probably exhaust the list of public churches under a bishop for the first fifty years. Glastonbury, Westminster, Lindisfarne, and a few other monastic churches the list of public churches under an abbot. The earlier fabrics were no doubt of a very humble description. Baeda, writing in 730 A.D., describes one as being square. Aleuin, some sixty years later, also speaks of a square

temple. Baeda relates that Paulinus, 627 A.D., built a timber church at York, and that Finan built a church in the Isle of Lindisfarne of cleft oak, and covered it with reeds. Eadbert, bishop of that place, afterwards took off the thatch and covered it with plates of lead. It is true that here and there stone churches are heard of before the Conquest, chiefly in the south of England. For instance, Baeda mentions a stone church at Lincoln before 730 A.D., and states that King Edwin built a stone church at York in substitution for the wooden one which he had first erected. But they were in towns, and the same writer alleges that stone churches were unusual in England. Churches when not constructed of wood were most probably of wattle and dab in the East country, after the fashion of the existing church at Greenwood in Essex, or in this county (Devon) of cob, covered with thatch. It seems, however, probable that until within a century before the Conquest very few, except public churches, consisted of more than an altar with a shed over it to protect the officiating presbyter from stress of weather, or, indeed, of more than a cross erected on some open piece of ground. Writing in or about 750 A.D., the

Abbess Walpurga stated:—"It is the custom of the Saxon race that on many of the estates of nobles and of good men they are wont to have not a church, but the standard of the Holy Cross dedicated to our Lord, and revered with great honour, lifted up on high so as to be convenient for the frequency of daily prayer." This statement receives confirmation from Baeda. About a century, however, before the Conquest, there must have been a certain number of private churches, or, at least, of private chaplains ordained for conducting services regularly at particular places, who claimed in consequence to be entitled to receive the people's tithes and offerings. This is manifest from the 2nd of King Edgar's Ecclesiastical Laws in the year 958 A.D., and this was the first step to what afterwards became the parochial system.

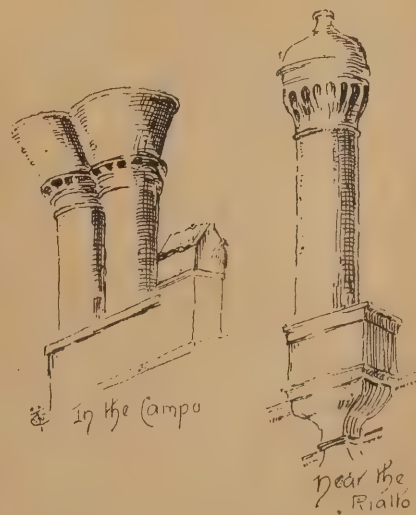
PAROCHIAL CHURCHES.

The parochial system introduced a new kind of church and a new kind of service, churches which were private or oratories in the foundation, but were allowed some of the rights of public churches, and had a form of service which was neither a solemn service conducted by many clergy, nor yet a private service conducted by a single priest. The parish was the manor or group of manors under its ecclesiastical aspect. The origin of the parochial system is therefore contemporary with the origin of the manorial system, but although it may have existed earlier in France, in this country its beginnings date from the Norman Conquest; the system was not, however, complete before the 13th century. The Norman Conquerors of this country, although rough and ready in manners, were pious and devout in heart, and they altered things greatly to the advantage of the Church. Frequently a Norman churchman was placed at the head of the ancient minsters as Abbot, and the estates of the religious house were conferred upon him to hold by baronial tenure. Over and above this the more religious among them began to pay tithes on their newly-won estates as their ancestors had paid before them in Normandy. These tithes they sometimes bestowed on an ancient minster, but quite as frequently they gave them to the priests whom they appointed as chaplains for newly-erected

churches on their own estates. Gradually the ties were broken down which connected the villages with the ancient minsters; the newly-built village church, with its monasterium or glebe-house, became a centre of religious life, but not of discipline, save of the inner forum, and the village service ceased to be a private service, celebrated by a travelling missionary from the bishop without becoming a solemn one.

INTERMEDIATE CHARACTER OF PAROCHIAL CHURCHES.

The village church is not intended for solemn worship like a cathedral or minster, therefore, the presbytery and apse, and a detached altar standing in the chord of the apse, are not required. In it the priest is simply the public leader of the people's worship. He takes his place at their head like one of themselves, for as Micrologus says, the people are necessary to him to make up the two or three without whom there can be no public or corporate worship. The most suitable place for the altar, therefore, is against the east wall. As solemn services died out in ancient minsters, which appears to have been the case at the beginning of the thirteenth century, a straight wall was erected, even in these, against the east side of the altar; the bishops seat was removed in consequence from the east end to a place in the choir, and the presbytery converted into an ambulatory or enlarged to form a lady chapel. The village church being without a presbytery, the seats for the clergy—often one, never more than three—were placed on the south side of the altar. Owing to the same reason—the absence of solemn worship—the choir or chancel of a village church is usually found of small dimensions, and in most cases incapable of accommodating a choir, notwithstanding the modern practice of placing these. It seems, indeed, impossible that a choir could even have occupied the chancel, if any attempt were made, as no doubt it would be on great days, to celebrate the service with any degree of solemnity. A certain amount of space would be necessary for the deacon and sub-deacon to pass to and fro to the rood loft. Had a choir in the chancel been contemplated, we may be sure the chancels would have been constructed much wider than they are usually found. This view is strikingly confirmed by some of the latest pronouncements of the society of St. Osmund, who considered the west gallery the most suitable place for the choir. In a collegiate church the singers formed a semi-clerical order, who were instructed and brought up in the house of the church. In the village church there was no order of singers. The only other clerk besides the priest was the collet or parish clerk, without whose assistance both the third and fourth Lateran councils forbid any priest to offer the Eucharist. We may even go so far as to say that the existence of the nave at all in the village church appears to have been really an



"CHIMNEYS."

SKETCHED BY C. W. T. TOMLINSON.



"CHIMNEYS."

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afterthought. For the Saxons, as they held their shire-moats and hall-motes in the open, so, too, they themselves prayed in the open. It seems not improbable that small prayer cells, those parts of a village church, in fact, which we now call chancels, were the original buildings constructed in a number of places by

THE ANCIENT MINSTERS,

both episcopal and monastic, which took upon themselves the task of sending clergy round to minister to the people. First the clergy had ministered under the shadow of the village-cross, next they erected a small cell to protect the altar, at which they ministered when they came round, and from its entrance they read the epistle and gospel, and preached to the people who stood without in the open. The bishops' minsters and the monastic minsters built these prayer cells, and so they and their successors in title continued to maintain them; the practice has still survived even in our own day. In some cases village churches were built where no prayer cell existed before, and this probably explains the rarer cases where by custom neither rector nor incumbent repairs the chancel. In a climate like ours attending a service in the open must have been at certain seasons fairly trying, hence in Norman times the manorial lord and his yeomen constructed for their own use a nave adjoining the chancel, practically a separate structure, and maintained it until the church rates abolition, at their own separate charges. The chancel and the nave, however, appear to have always been looked upon as two separate buildings. They were entered by separate doors, and the obligation to repair them fell upon different parties. We may therefore conclude that there is no rule for the size and appointments of the nave of a village church save the number of persons to be provided for, and the funds available for the purpose. Of old, the ancient minsters, and only the ancient minsters, were supplied with baptistries, for only at these was there an adequate staff of clergy to prepare adults for baptism. To this day only one church in Florence—El Duomo, the domus or house of the church—has a baptism. All lesser churches are and were supplied with fonts for the baptism in infancy of the children of Christian parents—not for adults. In this country it is doubtful whether village churches, except, perhaps, in a few instances, had fonts before the constitutions of Langton in 1223. As to chapels which exist for the ease and convenience of parishioners who are unable to attend their parish church, or else for the commemoration of the dead, little need be said. Their object being purely private, there is no reason why they should assume one form rather than another, except to serve the purpose for which they were intended. It seems, however, hardly reasonable that they should always be built on the lines of a parish church, unless they are built as district churches, and there is a prospect of the district being erected into a distinct parish. Perhaps such buildings afford the best opportunity for the architect to strike out some new line of his own.

To sum up briefly:—

1. There is, and always has been, in the use of the term church—applied to buildings—a broad distinction between public churches and private churches.

2. Public churches or ancient minsters are those provided with a staff of clergy capable of handing down tradition and exercising public discipline. Private churches are praying places for the living, or places for commemorating the dead.

3. Intermediate between public churches and private churches are the village churches, the majority of which were originally private chapels served by itinerant clergy, but were constituted in a certain sense public churches, and endowed with tithes and lands as such by the Norman conquerors between the eleventh and thirteenth centuries in this country.

4. The intermediate character of a village church is, therefore, represented in its Architecture.

(1) Instead of a presbytery, apse, and detached altar, the altar is fixed against the north wall, and seats for one, or at most three clergy, are placed on the south side. This construction of a village church has reacted on the construction of the cathedrals.

(2) There being no body of clerical singers, the chancel is small, and the singers—not a semi-clerical body here, but a mixed body—are placed in some other part of the church. The west gallery, according to the Society of St. Osmund, seems to have been chosen for this purpose.

(3) The shadow of the cross was the earliest oratory among the Saxons. It was succeeded by the prayer cell of modest dimensions, usually constructed and maintained by one of the greater churches. When the prayer cell became a church, the body of the church was added by the people for their own use, and by the people it has ever since been maintained until the Church Rates Abolition Act was passed.

(4) Village churches, being only public churches for certain purposes, are required to have stone fonts for the baptism of children. Baptistries for the baptism of adults belong to collegiate churches, otherwise called baptismal churches.

(5) In constructing chapels, it is desirable to consider their ultimate destination, and to construct accordingly.

THE Works Committee of the Paddington Vestry has approved amended plans for the erection of a theatre on the site of Nos. 212 to 220, Harrow Road. Having regard to the associations of Mrs. Sarah Siddons with Paddington, it is suggested that the new playhouse should be named "The Siddons Theatre."

It is understood that the Lords Commissioners of the Admiralty have accepted the tender of Messrs. S. Pearson and Son, Limited, 10, Victoria Street, Westminster, London, S.W., for carrying out the Dover Harbour works, which are estimated to involve an expenditure of three and a half millions sterling, and to occupy about eight years in construction.

SW Angle
Sheffield Municipal
Buildings

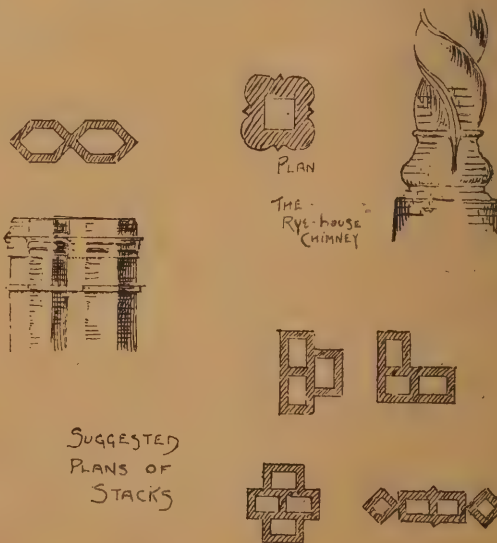
A NEW SCOTTISH ARCHITECTURAL ASSOCIATION.

SOME SUGGESTIONS FOR STUDENTS.

PERTH now has its Architectural Association. Mr. G. P. K. Young, A.R.I.B.A., is the president, and was in the chair at the inaugural meeting, an opening address at which was delivered by Mr. Hippolyte Blanc, R.S.A., Edinburgh. Before introducing the lecturer, the Chairman thought it better that on this occasion—the first public meeting of this Association—he should explain, in a few words, the purpose for which it had been formed. It had been originated and formed entirely by the young men in the district who were interested and actively engaged in the study of Architecture and engineering. With a view to carry out their desire of improving their knowledge in these subjects they had combined together to obtain better facilities of study. The means they proposed to adopt were, first of all, working classes, in which certain subjects would be given out for study and discussion under the guidance, it was to be hoped, of one or two of the practising architects in the city, who would assist by discussion and otherwise. The Society also proposed to give a few lectures during the season on special subjects, a course of interest to architects, and of information to the general public. It also aimed at trying to increase Architectural knowledge and

POPULARISE THE STUDY OF ARCHITECTURE

in the city. The working class had already been formed, and the attendance was good, and the enthusiasm displayed most gratifying. They hoped, by the end of the session, to hold an exhibition of the work the students had done, an exhibition which, he was sure, would be interesting to everyone.—Mr. Hippolyte Blanc said he had assented to the request to be present because he was glad of the opportunity it gave him to offer his congratulations on what he viewed as an important and valuable step on the part of local practitioners. Such a step as this was a recognition among them of the dignity of their Profession, of its claims, and of the responsibility attaching to those entering its ranks. He ventured to predict for them a share of the luck which had attended ventures in this the great year of the Jubilee. He wished them success, for the sake of those launching the Association, as well as for those who might arise to attach themselves to it. Without presumption he felt constrained to add that he was sure theirs would be cordially welcomed as an addition to the group of similar associations. There could be no doubt that the banding together of members of the same profession tended to the maintenance of professional etiquette. Yet he would remind them that with all the advantages accruing to such associations, their influence for good was weakened unless



"CHIMNEYS." SKETCHED BY C. W. T. TOMLINSON.

there was a recognised freemasonry, a fraternal and confident co-operation among its members. He wished to lay before them, as a young Society, a few thoughts upon the interests of their Profession, and indicate how best they could aid in promoting these. The past was that out of which the future grew, and any effort towards progress which did not recognise the value of that past was unreliable. He desired to impress upon them that the enthusiasm of their beginning should be maintained, as much as possible, throughout their Association; and that as life progresses the Association should be proved perennial, by a constant springing up of new actors as the old actors subsided in the restfulness of autumnal repose. Such an Association as this should be raised upon the concrete of a fraternal communion with a

SUPERSTRUCTURE OF UNAFFECTED LOVE
for the Profession. Love was their keynote. Another requisite was devoted study towards knowledge, but it must be patient, persistent, and consistent. All knowledge acquired would never make an artist, but it would at least prevent the errors and anachronisms which betrayed the untutored hand. To Ruskin's mind there were two qualities which distinguished great artists—imagination and industry. Imagination was a high gift, though it could not be boasted that many artists possessed it. But industry had promised to it great rewards, and its exercise was within the power of all. What concerned them in this Association was the manner in which it could be made helpful, primarily to young members of the architectural Profession, and also the public who interested themselves in Art matters. There was knowledge which would not be useful to the architect, but it was not intended that an architect should be expert in all. He should, however, have such experience of all branches that in the interests of the public he, calling himself an architect, should prove himself competent to design a building that would at least be sound in construction and healthful without extravagant waste of material. Architecture was a definite Art, much more so than her sister arts of painting and sculpture. It was in the decoration of the forms of the building that the Art was expressible. How were all the requirements to be most readily attained by the student? The only way was, first, by a course of well-directed study, and second, by concurrent office practice during a specified number of years. He recommended five years at least. Mr. Blanc then reviewed the system of teaching on the Continent. Looking at home they found an absence of anything like State aid, and the burden was, in consequence, laid upon communities to establish, either by private enterprise or congregated effort, the necessary ateliers and larger schools, where such instruction as was required by the architectural student might be obtained. The actual defeat of their system was the too great ease with which one could enter the Profession, take three or four years at very mechanical work in an architect's office, and, without special study of any kind, commence the commercial pursuits of an architect. With all the machinery in schools of art for training students, there was still an important requisite wanting. There should be

SOME FORM OF TEST

at the close of a youth's ordinary school education, from the result of which a direction might be given him as to that labour of life for which he indicated most fitness. An Association of this kind should exist primarily for instruction. It should be a nursery and training room for all entering the Profession. Dealing with what should be their objects of study, he said the best subjects were to be found in the past. These designs, however, should be studied, and not merely copied. Lectures, &c., should be systematically pursued; and every encouragement should be given to outside measuring and sketching. In this connection they should make the camera their friend. The student, also, must not overlook his opportunities in gaining office practice. The great difference between the British system and that pursued on the Continent, was that instead of being too academic they

joined the practical with the academic. His care in the office should be to welcome a good draughtsman. In his early years of office work he should jealously guard himself against slovenliness. In Architecture there should be a balance of light and shade, as much as in the work of the sculptor or the painter. An architect's best help towards a satisfactory design was his first carefully finished drawing. He strongly advocated a careful study of perspective. Concluding, he gave advice as to examinations, and recommended them as a matter of discipline if on no other grounds.—Mr. David Smart, architect, proposed a vote of thanks to Mr. Blanc.—Rector Chambers seconded. Mr. Blanc, he said, had uttered throughout his discourse wise sentiments which might well be applied to other arts and studies, and not merely to Architecture.—Mr. Blanc, in thanking the meeting for the compliment paid him, dwelt on the advisability of instituting a library in connection with the Association. He thought this suggestion would be far better expressed in action than in words, and he therefore took the opportunity of presenting them with Volumes I. and II. of the "Edinburgh Sketchbook," as an offering from himself for the beginning of what he hoped would be a very interesting collection.

AN OLD CITY TAVERN.

THE Blue Last, in the Broadway, Ludgate Hill, which shares with one other house in the City the distinction of bearing that sign in London, is a tavern of considerable historical importance, and, if the ground upon which it actually stands cannot claim any particular interest, the building is in the very midst of land every inch of which is eloquent of the dead past. Just without the City wall, which ran close by, stood the first Blue Last, in immediate proximity to the site of a small barbican or watch tower, protecting Lud Gate, which was only destroyed in 1760. This gate stood between the old London Coffee House, which was pulled down about forty years ago, and the church of St. Martin. In the year 1792 some workmen uncovered the remains of the small barbican which protected the gate, and shortly afterwards another defensive work was found in a line with the Old Bailey. The City wall—the last remnants of which, in this part of London, were only destroyed a few years ago for the widening of St. Martin's Court—had its south-western angle hard by Ludgate, and almost exactly on this spot the Blue Last now stands. The house is situated within the parish of St. Ann, and at scarcely a stone's throw from the site of the great monastery of the Dominicans or Black Friars. Once again it has been

IN THE HANDS OF THE BUILDERS

for extensions and alterations of considerable magnitude. The object of the extension was to increase the convenience of the house, and the great difficulty encountered by the architect was to remove practically the whole of the interior construction and fittings from the older portion in a very limited time and space, without closing or materially interfering with the continuous occupation of that portion. This has, however, been most successfully accomplished. Speaking generally, as to the construction and architectural features, it may be said that externally it was sought to make the new part accord and harmonise with the old, and internally to alter and renovate the old to match the new. The ceilings of the bar are decorated with "Salamander" asbestos plaster, which produces a very pleasing effect, whilst the walls are lined with light-coloured tiles. The new staircase is of Stuart's granolithic concrete, with wrought-iron balustrade and grilles, and the lobbies, as well as principal landing, are paved with mosaic. The walls of the smoking-room have been hung with Lincrusta, and subsequently decorated. The whole of the works have been carried out from the designs and under the superintendence of Messrs. G. Elkington and Son, of 95, Cannon Street; whilst Mr. James Carmichael, of Wandsworth, was the building contractor.

THE WOES OF THE BUILDER.

LABOUR MOVEMENT IN BIRMINGHAM.

WITHIN the past few days the Birmingham master builders have received intimation of a movement affecting wages, working hours, and working conditions on a scale altogether unprecedented in the trade. The application emanates from the Building Trades Federation, which comprises all those engaged in the building trades, with the single exception of the bricklayers, and advances are asked for no fewer than seven separate classes of workmen. The following circular has been posted to the Associated Master Builders by the secretary:—"I beg to advise you that notices have been received for important alterations of rules, reduction of working hours, and advances in wages as specified below, namely:—

Carpenters from ...	9d. to 10d. per hour.
Plasterers ...	9d. to 10d. "
Masons ...	9d. to 10d. "
Mason Fixers ...	9½d. to 10½d. "
Plumbers ...	9d. to 10d. "
Labourers (both societies) ...	6d. to 6½d. "
All scaffolders ...	6½d. to 7d. "

No notice has been received from the Bricklayers' Society. The mill sawyers ask to have rules with this society." We understand that the applications will probably be considered at the annual meeting of the Birmingham Master Builders' Association, which is fixed to take place at the Grand Hotel tomorrow, 25th inst. The claim has caused some astonishment among the master builders, some of whom state that, with an experience of fifty years, they have never known wages to ascend more than a halfpenny per hour at a time. On this occasion it will be observed five of the seven classes, practically comprising all the skilled workmen, ask for one penny. Such a concession would raise the wage rate to a standard never before realised. It would

INCREASE THE COST OF LARGE CONTRACTS

by thousands of pounds, while it would place great difficulties in the way of erection of small property. There is, no doubt, a very important item in the programme—a general eight hour movement. Hours vary in the building trade with the seasons, but the general result of the reduction, which brings the working day in winter to slightly under the eight hours day, and in summer to slightly over, will be to yield an average of eight hours per day. Prominent workmen, while admitting the entirely unprecedented character of the demand, point out that such a trade as that at present existing has never been known in Birmingham. In the carpenters' society, for instance, which comprises 2000 members, there is not a single society man out of work. This is probably true also of non-society men, but these now form so small a proportion of the whole that their organised fellow-workmen consider they may safely be left out of account in the matter. Next spring will probably see something like a boom in the building trade, and workmen will be at a premium. Under those circumstances, the men consider they will be to blame if they do not make hay while the sun shines. Several thousand workmen in Birmingham and the neighbourhood will be affected by the movement, which is undoubtedly the largest undertaken in any industry for several years past. The one element of the situation from which the employers derive comfort is that the proposed changes cannot take effect until April next, in accordance with an agreement arrived at six months ago. Six months notice must be given of any proposed change, and in the meantime the matter must come before the Board of Conciliation, which has power to settle all matters in dispute, and its decision is binding upon all parties. Obviously such an arrangement is necessary in the interests of the building trade, in view of the large contracts undertaken. The men are waiting with a good deal of interest the reply of the employers which should be to hand by December 1st. Any decision of the Board affecting wages must be arrived at by the Board not later than March 25th.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

November 24th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ARTISTICALLY inclined visitors who have been led by unfrequented paths to the Tate Gallery, will probably have been delighted with the groups of red-sailed barges which usually formed a foreground to the huge Victoria Tower, and to the peeps through arched gateways of riverside wharfs, which have called to remembrance the early Thames etchings of Mr. Whistler. If the London County Council is permitted to have its way, all this is to be done away with, and at a considerable cost for compensation for vested interests and construction. Another link in the long, uninteresting stretch of riverside embankment, which will ultimately extend from Hammersmith to London Bridge, will thus be forged. The matter has been referred to the Improvements (!) Committee.

THE Duke of Bedford proposes carrying out an improvement, by demolishing all the old unsanitary houses and stables in Little Guildford Street and Little Coram Street, and widening those streets to the extent of 40ft. throughout the entire length. The St. Pancras Vestry has agreed to pave so much of the land to be yielded to the public as lay within its district, the St. Giles's Board of Works having arrived at a similar decision with regard to the portion of the new street within its area.

WHAT may literally be called an unrivalled opportunity is open to the architects of all countries, designs being invited by the trustees of the University of California. Although this seat of learning only sprang into existence five-and-thirty years ago, it already possesses a capital fund of nearly two millions sterling, while the annual grants of public money amount to some 300,000 dols., and there are in addition the fees of 2300 students. There are practically no restrictions upon the freedom of the competitors, either as to the treatment of the building or even its cost.

ONE of the most notable street improvements undertaken of late in London is the demolition of the block of shops in front of the Hôtel Cecil, in the Strand. The site upon which these buildings stand will be utilized for the addition to the hotel of a new wing, with an arched entrance into the Strand. This will be an imposing structure, and will give a new air of dignity to a street which at present is not remarkable for its architectural features. But a more important result will be the widening of the roadway by 13ft. The line of frontage adopted will be enforced in the case of all new buildings on the same side of the street, so that it is only a question of time for the Strand to become throughout a fine, broad thoroughfare from end to end.

AMONG other items of news from Paris it is announced that the Société Nationale des Beaux Arts, which has since 1890 controlled the Salon du Champ de Mars, has decided to build a gallery in which to hold its annual exhibitions. A site in a busy quarter of the city has been secured, and the building is to be

completed in six months' time, so as to be ready for the spring show of 1898. This decision seems to imply permanent separation on the part of the new society from the Old Salon, and apparently puts a stop to the hope of ultimate reunion between the old society and the new, which has been entertained in French artistic circles ever since the original schism. In such an Art centre as Paris there is, however, ample room for two exhibitions of real importance.

An important series of tests on the durability of paints on metallic structures which are continuously exposed to the weather and coal gases, is now being made in New York by instruction of the Department of Public Works. An account of the time required for coating, the chemical analysis of the pigments, and other data connected with the work, is being carefully kept by the engineers of the Department.

THE death is announced of Mr. John Bagnold Burgess, of the Royal Academy, in his sixty-eighth year. His father was landscape painter to William IV., and for generations the family had been artists, his great-grandfather having given lessons to Gainsborough. He was educated at Brompton Grammar School. Thence he migrated to Mr. Leigh's studio, and had among his fellow-pupils Edwin Long and Philip Calderon. At an early age he carried off the first medal awarded by the Academy for drawings from the life, and shortly afterwards commenced to paint portraits. It is nearly thirty-five years ago since his first Spanish picture, "Bravo Toro!" divided attention with Frith's "Royal Marriage." From 1865, each year found Mr. Burgess in Spain, occasionally crossing the Mediterranean to depict some African scene, but, as a rule, he rested content with the churches, priests, nobles, gipsies, beggars, beauties, picadors, and matadors of Seville.

A VERY amusing instance of the way in which museums are imposed upon has just come to light. At the French Revolution, when the Cathedral of St. Denis was so mutilated, the figures which ornamented the beautiful Gothic tomb of Dagobert were thrown down and for the most part destroyed, all that remained being the body of his Queen Nantilde and the head of his son Clovis. When the restorers stepped in, subsequently, they made the best they could of the bits, putting the son's head on the mother's body and calling it the Reine Nantilde. Not very long ago more intelligent restorers put an end to this absurdity, and there are now to be seen at St. Denis two statues, on which the original portions of each are preserved. But meanwhile casts of the hybrid were taken, and they still exist in the collection of the Beaux Arts, at Paris, and in the National Bavarian Museum, at Munich, as examples to students of all that is best in Gothic Art. But this is not all. In the Great Museum at Berlin, in the sculpture department, there is a small statuette of stone, with various cracks and flaws, which give it an antique appearance, which is nothing less than a smaller and very imprudently made counterfeit of the hybrid. The forger felt the difficulty which might be raised to placing a man's head above a woman's bust, and so has modified both to a small extent; but there is not a shadow of doubt that he has succeeded in palming off a most unexpected imposition where he could little expect to.

THE increasing use of iron and steel for building purposes, says a German contemporary, makes the question of the action of lime and cement on them of some interest. Wrought-iron bedded in freshly-prepared lime is acted upon to a considerable extent; cast-iron is not so much. The action consists of a profuse rusting which extends inward; moreover, the untouched iron core seems to have its physical properties changed, becoming brittle and weaker. Another danger seems to be caused by the remarkable expansion in volume which goes hand in hand with the deterioration of iron while rusting, considerable force being exerted as a consequence; as,

indeed, it has been noticed that huge blocks of stone which had been connected by iron clamps set in lime mortar were thrust asunder and had to be rebbed. Plaster-of-Paris has a similar action on iron, though not so marked; while cement, on the contrary, seems to be an excellent protection to iron. Even under water cement prevents deterioration of iron to a great extent, and it is therefore recommended where there is any liability of moisture to be present.

MR. J. HARTREE, of Hereford, as a preliminary to the course of Oxford University Extension Lectures on Gothic Architecture, to be held in January, recently gave a lecture on "The Architecture of Ledbury Church." The lecturer, after giving a history of parish churches in general, tracing them from the Basilicas of 300 A.D., and having touched upon the various developments; made necessary by the use of a choir, &c., which tended to alter the shape of churches, also the usual ways in which they were enlarged, went on to deal with Ledbury Church, the oldest portion of which, he said, were the Norman arches in the chancel, which were part of the chancel arcade—1060 or 1070. The lecturer also spoke of the detached tower, remarking that in Herefordshire detached towers were more usual than in other counties.

THE Red Cow, one of the last remaining of the old coaching inns in the neighbourhood of London, is being demolished. The old house was of so fragile and slight a character that its destruction has offered few obstacles. Situate at Hammersmith, at the corner of St. Paul's Schools, it was probably the oldest house in that western suburb, and, being on the old Bath and Exeter roads, was a busy place in coaching times, the more especially since it was then at the end of the first stage out of London, and the inn at which the horses were changed. When the last coach was taken off the road the character of the inn changed. It was a favourite "pull up" for the carters bringing hay and garden produce to the London markets, and on certain mornings, with hay-wains standing in front, and the horses drinking from the kerbstone trough, it was picturesque enough, and resembled nothing so much as a picture by Morland come to life.

THERE is on exhibition in the Egyptian Galleries of the British Museum a very interesting statue of one of the kings of the Ptolemaic period. This statue, which is one of a number of recent additions, shows a very strong Greek influence, not only in the features, but also in the general outline of the whole. The legs are much damaged, and the feet are entirely wanting. The king is represented wearing the usual short apron fastened round the waist, and the head is covered by the familiar wig, ornamented with the Uraeus, or sacred serpent. There is no inscription to show what particular king it is supposed to represent, but its late date is well shown by the method of carving, as well as by the features, which are certainly not Egyptian.

THE Port of Antwerp has undergone successive improvements as her shipping interests have augmented. In 1886 the dock and quay accommodation was largely increased and brought up to the modern standard. Since that date, however, no further improvements have been made, and Antwerp is now finding its resources quite inadequate to the calls made upon them. Consequently, the Belgian Government has decided on a large extension of the Antwerp quay and dock accommodation. This extension is to consist: (1) In an addition 2000 metres in length to the existing quays in the southern or upper part of the port, where it is hoped, by means of a bar, to establish a permanent navigable channel accessible at all states of the tide; and (2) In the rectification of the course of the Scheldt by a new "cut," extending from a bend of the river some miles below Antwerp to a point of junction with the present river front. This new cut is to be some 8000 metres—close upon five miles—in length, and, if successfully accomplished, will

offer almost unlimited space for expansion on the right bank of the Scheldt below the town. The project is a somewhat daring one, as the courses of river currents are notoriously dangerous to interfere with, and any stoppage, even of a temporary character, of navigation on the Scheldt, from silting up or other causes, would prove disastrous to the interests of Antwerp. The most eminent hydrographical engineers are, however, in favour of the scheme, and there can be no doubt that if it be brought to a happy issue it will not only be an engineering triumph of no mean order but will open a new era of prosperity for the Port of Antwerp.

It is stated that specifications have been prepared on behalf of the Post Office authorities, and will shortly be issued, for the erection of a power station in connection with the G.P.O. A site has been acquired by buying premises from Messrs. Lalouette and others, immediately adjoining the G.P.O. in Princes Street, and here a station is to be erected, to be furnished with engines to create power for working the pneumatic system of transmitting telegrams, as well as lighting the Post Office and the Returned Letter Office in Upper O'Connell Street.

THE Union Centrale des Arts Decoratifs is to be given an opportunity to try and form a collection of examples of the applied Arts, on the same lines as that which is administered by the Science and Art Department at South Kensington. At the Louvre, too, an attempt is to be made to rival the collection of casts which is one of the most valuable features of the South Kensington Museum, and a large gallery, containing reproductions of the best antiques, is to be opened in the next few days.

THAT renowned hostelry the Greyhound, in Dulwich village, has reached its last days. For more than a year its doom has been pronounced, but now there is little time left, for such as may wish to renew their acquaintance with the old house and grounds, before the whole place is demolished, to make room for a new road of genteel villas. Dulwich has up to the present retained in a great measure its rural simplicity, and is still one of the sweetest spots of Greater London. These happy times are, however, nearer every year to their end, for leases of the many cottages and pleasant old houses are falling in, not to be renewed, and all too soon must come the end of Dulwich village. The Greyhound—last remaining of the old inns of Dulwich—is a substantial, many-windowed house standing back from the roadway, with trees and shrubs in front. In the dim and distant past there was a Green Man on the same site, and in the middle of the 18th century the Greyhound came into existence.

THE Council of Rome has secured the celebrated Villa Borghese. The finances, both of the Government and the municipality, seemed in so precarious a position that it was looked upon as very probable that the city might be for ever spoiled by the property passing into the hands of the speculative builder. The princely family of the Borghese has fallen upon such evil times that the place was going to rack and ruin. They will now receive an annuity of £6000 a year in consideration of the concession.

MR. J. A. F. ASPINALL, chief mechanical engineer to the Lancashire and Yorkshire Railway Company, has succeeded Sir A. R. Binnie as president of the Institution of Junior Engineers, and in his new capacity occupied the chair at the opening meeting of the season, the other evening, at the Westminster Palace Hotel. His address dealt chiefly with the wear and tear of materials, and he made many interesting statements as to the "life" of the different parts of a locomotive. Incidentally, too, he showed that we are becoming more and more dependent upon either our colonies or foreign countries for timber with which to construct the under frames of railway carriages and wagons. The difficulty of obtaining the best English oak for this purpose is growing greater every day, and Mr. Aspinall expressed

surprise that we should have so long delayed in following the example of many Continental railway companies, which use rolled steel or iron for under frames. The possibility of the steam locomotive being superseded by electric traction was also considered. Mr. Aspinall did not suggest that electrical working was not possible, but he was of opinion that they had not yet solved the problem of moving heavy loads at high speeds by means of electricity with sufficient economy to warrant the immediate replacement of steam locomotives with electric plant.

THE Commission of Sewers, at a meeting on Tuesday, Nov. 16th, considered a report of the Finance and Improvement Committee relative to the improvement of Lower Thames Street. The length of the street now proposed to be widened was about 315ft., and a plan and estimates prepared by the engineer, for making the same 40ft., 50ft., and 60ft. wide, at a cost of £151,500, £171,100, and £199,000 respectively, was submitted. The Committee was of opinion that the existing accommodation was inadequate to the requirements of the neighbourhood, and that it was desirable to widen Lower Thames Street between Botolph Lane and Fish Street Hill. It, however, recommended that the plan and estimates for making the portion of Lower Thames Street 40ft., 50ft., and 60ft. wide respectively, should be submitted to the London County Council first of all, and the opinion of the Council invited as to the alternative schemes, with a view to their contributing towards the cost of the one they deemed it most expedient to carry out.—The Commission agreed to this proposal.

At the last meeting of the Surrey County Council particulars of the proposed lock below Richmond were given from the scheme of Mr. E. Pritchard, C.E., the engineer appointed by the local committee. Mr. Pritchard advises the construction of the new works at a point about nine miles below Richmond Lock, and five and a half furlongs below Putney Bridge, near and to the west of the point where the River Wandle enters the Thames. The works are to comprise a steel single footbridge across the Thames, having eight arches, six of 90ft. span, and two of 60ft. span. The bridge would contain six of Stoney's patent moveable sluices (similar in kind to those at the Richmond Lock), each of 90ft. clear span and 14ft. deep, with the necessary machinery for raising and lowering the sluices. The headway of the bridge is to be 22ft. 6in. above Trinity high water mark. The sluices are designed to hold up the water 6ft. above low water of spring tides. The increased depth of water anticipated is at Kew Bridge, 4ft.; at Barnes Bridge, 4ft. 7in.; at Hammersmith Bridge, 5ft.; at Putney Bridge, 5ft. 9in. The estimated cost, with a single footbridge (there being two footbridges at Richmond Lock), is approximately £250,000, and the time required for carrying out the works between three and four years.

THE Isthmian Club has just entered into the occupation of 105, Piccadilly, which was once the residence of the late Sir Julian Goldsmid. It is not the first time that a mansion of its kind has been turned to similar uses. For example, the Naval and Military Club, within a few doors, tenants No. 94, which was erected for the Earls of Egremon, and afterwards known as Cambridge House, the Duke of Cambridge (brother of George III.) having lived in it. Lord Palmerston subsequently held it for ten years, until his death, and it was the scene of Lady Palmerston's brilliant receptions. Next door to the Isthmian Club is the St. James's Club, formerly Coventry House, and for a century the residence of the Earls of Coventry. There is a story, too, that the Turf Club, in Clarges-street, was the house which was built by the Duke of Grafton, who forgot to insert a door, and, therefore, had to buy the adjoining premises, in order to make an entrance. The name originally given to the new headquarters of the Isthmian Club was Hertford House, after the late Marquis of Hertford, who built it about 1850, from the designs of a Polish architect. The eccentric

owner, however, never lived in it, because the parishioners of St. James's refused to allow him to pave the street after a fashion of his own. In it were placed many splendid works of Art, purchased by the Marquis from the late King of Holland, and Lord Ashburnham, with several others from the Saltmarsh collection. The mansion was left to Sir Richard Wallace, who sold it to the Goldsmid family. During Sir Julian's lifetime it was a treasure-house of curiosities, and some fine tapestries adorned the magnificent staircase. The rooms, providing free circulation, were admirably adapted for entertainment of guests in large numbers, and hence, during the Diamond Jubilee, it was rented for a short time by the Right Hon. Joseph Chamberlain. The Isthmians, who are chiefly University and public-school men, are well pleased with the change, their old rooms in the Walsingham House block, which they occupied for ten years, of course bearing no comparison to the magnificent suites they now command. It is interesting to note that, in addition to the St. James's Club, they have for immediate neighbours the Junior Constitutional Club, the Badminton Club, and the Savile Club. From 98 to 107, Piccadilly, inclusive, there is now an unbroken sequence of club houses; and in all there are eleven first-class clubs commanding frontages upon the Green Park, in the one thoroughfare, where years ago, from 1807-19, Wattier's, a "subscription house," at the corner of Bolton Street, was the rather questionable resort of most of the fine gentlemen of Beau Brummell's day.

WITH reference to the paragraph appearing in our "Bricks and Mortar" columns last week, on the subject of the double glazing of windows in the winter, and in which it was stated that the proposal was "made in Germany," Messrs. E. Farrar and Co., of 69, Berners Street, Oxford Street, W., write to the effect that they have adopted the plan on several occasions with excellent results, and at the present moment have some exceptionally large windows in hand with the glazing on this principle.

To escape the charge of vandalism, the Government has named a committee to choose the plan for the future railway terminus on the Quay d'Orsay. It will include MM. Puvis de Chavannes, Bonnat, Lafenestre, Detaille, and Vaudremer, artists who are members of the Institute; M. Sauton, President of the Town Council; M. Lisch, Inspector-General of Historic Monuments, and M. Roujon, Director of Fine Arts, but there are also a number of engineers, architects, senators, and deputies. M. Dupuy is the president of this committee.

MR. E. S. PRIOR is about to write a book on English Gothic. A most interesting problem is the special one with which he proposes to deal: the evolution of an original and characteristic English style from the style which, introduced by the Normans, was for a time common to England and Northern France. Mr. Prior will show the steps by which the two styles became differentiated, and how the English Gothic became an expression of the national mind and feeling. The illustrations, taken from English and French buildings, will be executed by Mr. Gerald Horsley. The work will be published by Messrs. Bell.

Few even of the lovers of Charles Dickens are aware that a portion of the old Marshalsea Prison yet stands hidden away behind the Borough High Street and St. George's Church; but the remaining wards of the prison, which once was the home of Mr. and Mrs. Micawber, when that gentleman's affairs had arrived at a "crisis," are about to disappear. The new scheme, which has been undertaken by the L.C.C., for the continuation of Tabard Street into the High Street, past the east end of St. George's Church, will wipe into oblivion all that is left of the old Marshalsea, though the church, in which Little Dorrit spent the night when she had been "locked out," will stand as a monument of the great novelist's creations. The gateway of the prison, up a court, No. 205, High Street, stood until a few years ago,

and the new warehouse entrance—for the ward which was left was so utilised—bears an inscription: "This site was originally the Marshalsea Prison, made famous by Charles Dickens in his well-known work 'Little Dorrit.'" The windows of the prison ward can be seen from the court alluded to, which is the second court on the right hand side of the Borough High Street, going from St. George's Church towards London Bridge. Dickens was very fond of painting this district, and it was in the adjacent Lant Street that Mr. Bob Sawyer entertained Mr. Pickwick and friends.

A CURIOUS state of affairs is reported with regard to Killmallock Castle, a reputed residence of the Desmonds, which some few years ago would have been demolished but for the intervention of the county Limerick grand jury. The structure is now in a dilapidated condition, and, overhanging as it does the public road to Limerick, is dangerous to traffic. The necessary repairs, however, cannot be executed, owing to the action of a tenant who is in possession of the basement of the tower, using it as a smithy, and refusing to quit the premises unless he gets £500 compensation.

A PROPOSAL is made to complete the restoration of Stratford-on-Avon Church, in the chance of which are the grave and monument of Shakespeare. It is intended to reconstruct the organ, relay the floor of the nave, provide new heating apparatus, new oak seats in the nave, and other necessary work, at a total expenditure of £5200, towards which only about £800 has been promised. The work is to be begun in January, and it is hoped to complete it by Shakespeare's birthday next year.

THE plans for the new Coronet Theatre, Notting Hill Gate, are approved by the London County Council. Mr. W. G. R. Sprague, the architect of so many of our suburban theatres, is responsible for them. The theatre will occupy an important site in High Street, Notting Hill Gate, open on three sides, having frontages to High Street, Johnson Street, and Uxbridge Street. The frontage to the High Street and return flank to Johnson Street, about 200ft. in length, is of an exceedingly striking and bold Louis Seize character. It will be entirely of white Portland stone, a well-designed tower some 70ft. high, with a copper dome, surmounted by a figure which bears 5000 candle-power, forming a feature at the corner, where is the entry to the better parts of the theatre. The audience will enter direct from the High Street into a circular marble vestibule, and thence by a short, broad marble staircase into the dress circle, balcony, and stalls. The house is to be on the two-tier system, and is without a single column, the construction throughout being of concrete and steel, and thoroughly fireproof. On the lowest level are stalls, pit-stalls, and pit, the first circle consisting of dress circle and balcony, and second circle consisting of amphitheatre, seats and gallery. In the better seats the entries are so arranged that access is gained on both sides of the auditorium, thus saving considerable discomfort in passing and repassing between the acts. The theatre will be amply provided with retiring-rooms, and large, well-appointed saloons are arranged for each section of the auditorium. As it is the intention of Mr. E. G. Saunders, the managing director, to run the house on very first-class lines, some considerable attention has been paid by Mr. Sprague in giving rather more accommodation than is usual to the dress circle, stalls, and private boxes. The sightseeing has been most carefully studied, so that the performance will be well seen from all parts of the house. The stage is of ample dimensions, being some 40ft. deep with a width of 65ft. and a height of 55ft. to grid. A complete block of dressing-rooms is provided off the prompt side of the stage, with lavatory and bath accommodation, hot and cold water supplies and ventilation. The decoration and furnishing throughout will be in Louis XVI. style, and the electric light will be utilised to the utmost in creating a most artistic and dainty effect throughout

the interior. Gas is laid on everywhere as a stand-by, in case of temporary failure of the electric light. Every possible precaution has been taken against fire, numerous hydrants being provided at every available point, while the double asbestos and steel-framed curtain can be lowered by one man in twenty seconds. The heating is by low pressure hot-water pipes and radiators, and the ventilation, sanitation, &c., have all been arranged on the most modern principles. The theatre will be able to accommodate some 2000 persons, and will be ready for opening early next autumn. The cost will be about £25,000.

THE New Burlington Art Gallery, the latest addition to our too numerous metropolitan picture galleries, opens at 15, New Burlington Street with a varied collection of oil and water-colour paintings, mostly in sketch stage. They are by young men who, though still rising, have already so far risen that their names are familiar as exhibitors at many important London galleries. Who is there does not know and appreciate the variety of subject and treatment given by the hand of Mr. Haité, President of the Langham Club? Other of these earnest student artists of the Langham are also seen in their strength; for the two-hour time sketches, executed periodically, are voluble of craftsmanship, power of speedy invention, and instructive feeling for composition. A drawing which shows all this at its best is Mr. Almond's "The Prisoner"; but Mr. Almond has other vigorous work, as well as an oil painting, of scrupulous finish, that has been seen at the Academy. A name not so well known as most of the others is S. R. Sime, but, if prophecy may be permitted, we predict that it will soon carry as much weight as any of them. Mr. Dudley Hardy (not in flippant mood), Mr. Breakspeare, Mr. Reginald Jones, Mr. Walter Bayes, Mr. Walter Fowler, and Mr. David Green are others who afford greatest interest.

THE Midland Railway Company has under consideration a scheme for the construction of a central station in Sheffield. The Company fully recognise the necessity of the proposed station, the only difficulty being the enormous expense which would be involved. The enlargement of the present station and the doubling of the main line for several miles, cannot, however, be delayed any longer.

THE panels for the decoration of the gigantic monument which Mr. Rhodes is erecting in memory of Major Alan Wilson's Shangani patrol are now being completed by Mr. Tweed, the sculptor. The first has just been cast in plaster ready for reproduction in bronze. Each member of the patrol is to have a place on the panels, and in the one completed there are eight life-size figures.

A FATALITY has occurred at Treviddo Viaduct, on the Cornwall Railway, between Liskeard and Menheniot, resulting in the loss of two lives. A new five-arch viaduct of granite is being built to take the place of the present wooden structure, and wooden ribs were being fixed, upon which the brickwork of the arch would afterwards rest. It was while one of the ribs of the fourth arch was being placed in position that the rope of 4in. manila cable, by which it was being steadily snapped, fatally precipitating two of the workmen nearly 80ft. below.

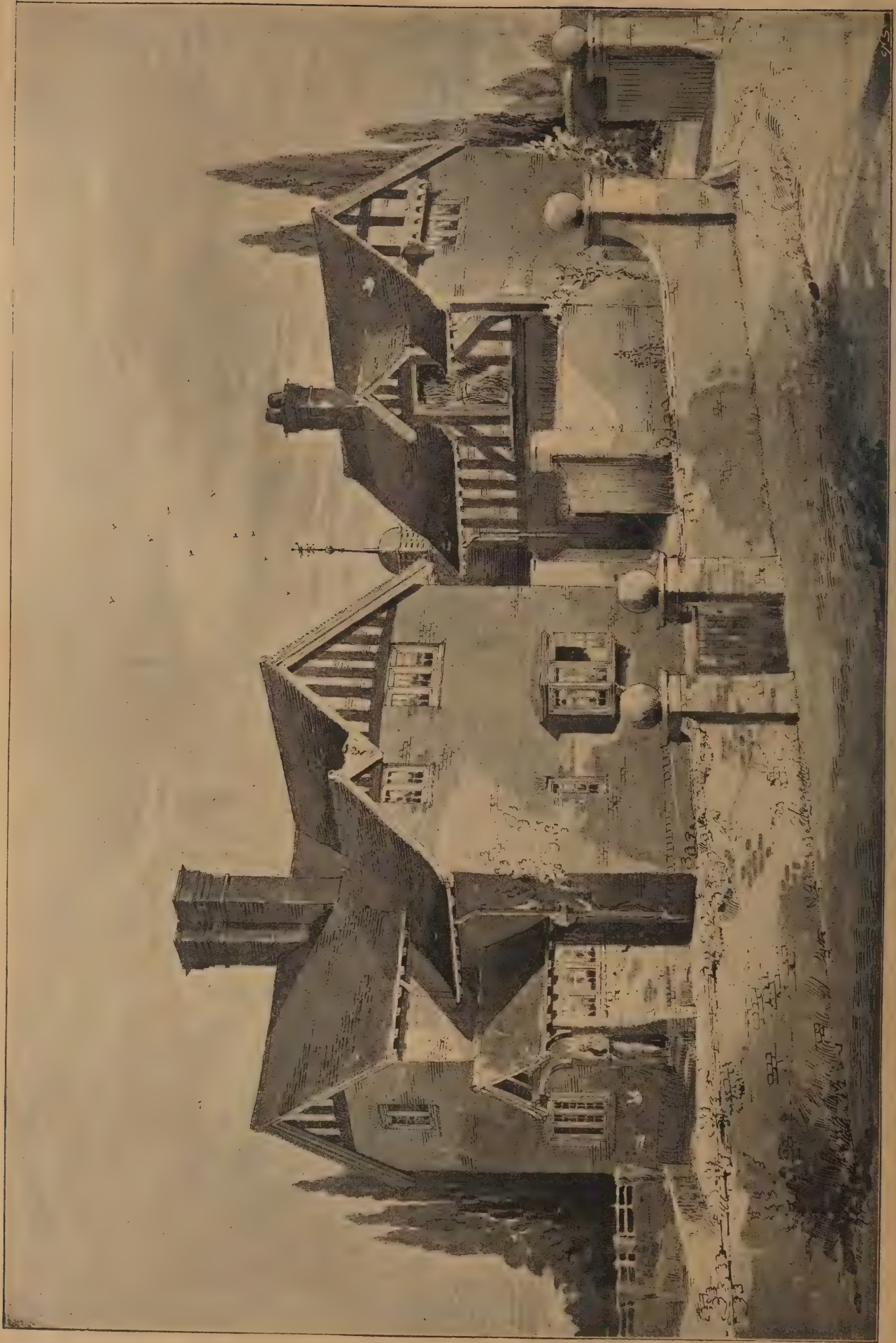
A LETTER from "A London Architect" appeared in these columns last week. "A London Builder" now writes:—"I have seen the letter in your issue signed 'A London Architect,' and I think it only fair to him that the statements which he has put forward should be either controverted or supported by the experience of a builder. It is satisfactory to know that architects are taking notice of the manner in which the men engaged in building operations are fulfilling their duties and obligations to the general public, because after all they are the employers of the workmen, architects and builders being only intermediaries, and it is some consolation to the builder to know that the undue increase of

cost of all building works will be placed to the account of the parties who are the cause of it, and not put down to the credit or discredit of the grasping employer. So far from your correspondent having underrated the case against the workmen, I am quite certain it is otherwise; and I am sure the experience of other builders will confirm what I am about to submit. That is, that on many jobs in London at the present time the bricklayers do not lay 450 bricks per day nor half that number, and I am not now referring to glazed bricks, or any special or expensive kinds of bricks, but ordinary common stocks or like quality. I do not suggest that this method of fulfilling their obligations is confined to the trades mentioned, but it is general, and the men do credit to their teachers, if not to themselves. It is not many years since they were told openly, either in Trafalgar Square or Hyde Park, at a meeting to consider the question of the number of unemployed and the remedy for it: 'You, each of you, do half the work you are doing at the present time, and there will be work for two where there is now only work for one.' It will be asked, What can this have to do with trade unionism? Well, in reply to this question the answer is that such a temporary violation of economic law can only be effected by organisation on the part of the violators—individual effort would be powerless.

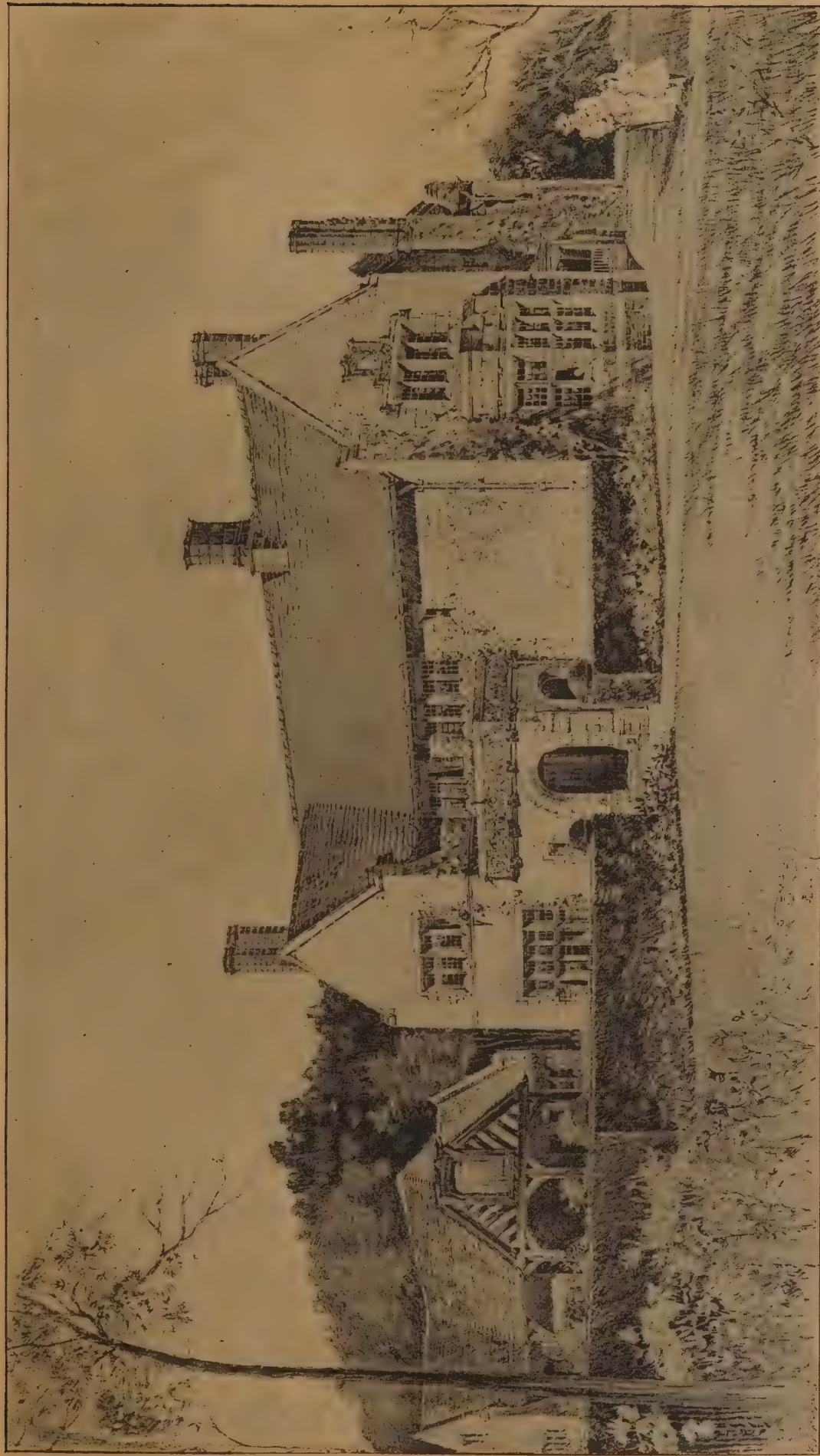
"THE foregoing observation," "A London Builder" continues, "applies with equal force to the other illustrations given by your correspondent, of the numberless ways in which an employer of labour is molested and interfered with in the conduct of his business, and the absurd contentions put forward as to which and whose particular right and province it is to perform what in many instances are trivial and unimportant operations. The employers in the present dispute have made enormous sacrifices in contending for the principles that:—(1) Labour is entitled to be paid for at market rates, and, in view of the severe competition, 'free trade,' under which they obtain their orders, at a rate which will enable them to successfully compete with their competitors, and not on any sentimental standard rates which may be adopted or put forward by the men who run trade organisations, and in very many instances could not possibly keep a job where competitive merit came into play or existed. For, after all is said, the question of hours in the present dispute is a question of wages, nine hours pay for eight hours' work. (2) That the employer is to determine in what way he should conduct his own business and utilise the machinery and appliances which he has expended his capital on for the purpose. It is difficult to see how the intervention of third parties can aid the permanent settlement of a question or questions where both sides fully realise and comprehend all the points involved, and where the only solution is the surrender or abandonment of the position which has been taken up. In this instance the employers at any rate recognise that the intervention of third parties can mean only the unsatisfactory method of 'auctioneers' equity,' and they are not prepared to crown their eighteen weeks of sacrifice with such a miserable result. If this conflict results in a demonstration that there are economic laws which, as other natural laws, must be regarded and not violated, however great the sacrifices may be which have been made by both the parties, they will not have been made in vain if the principle is brought home to the minds of others engaged in industrial operations before they enter into a similar conflict."

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EARLS COTE, PINNER. By W. H. SETH SMITH.



DESIGN FOR HOUSE AND STABLES. F. W. BEDFORD.

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DESIGN & DETAIL OF DOMESTIC BUILDING.

By JOHN E. NEWBERRY, A.R.I.B.A.

PRELIMINARY.

DURING the last six months a series of very instructive articles appeared in the BUILDERS' JOURNAL, by Mr. Lanchester, on "The Planning of Small Houses." The author there showed how inexpensive and conveniently arranged residences might be planned so as to profitably utilise every inch of space, and at the same time obtain a good architectural effect. It now devolves on the present writer to attempt a brief exposition of some methods of treating the various parts of a house, illustrated by practical details. I fear that much of what I have to show or say will be merely a repetition of the common practice of many of the readers of the BUILDERS' JOURNAL. I hope they will forgive my repeating what has so often been better said, and bear in mind that these papers are specially intended for students.

It seems to be a very generally received notion that it is possible to design the elevations of a house from a given plan in any style. This is, of course, absurd, for the exterior should always express as far as may be the arrangement of the interior. It is not intended to deal with any so-called "styles" in these notes, but with the current or vernacular phases of building in vogue at the present time. I feel very strongly that the best and most original work will only be produced by a careful study of good modern Architecture.

I remember Mr. Waterhouse saying, in one of his presidential addresses to students, that if we were ever to see a living Architecture grow up in our midst, we must be of one mind as to style, and each must determine to contribute his quota to the general development of our Art. And this not by aiming at startling effects, but by giving to our work our best and most earnest thought.

Some admirable precepts are to be found in Mr. Beresford Pite's "Design in Drawings," in the April and May numbers of the ARCHITECTURAL REVIEW, notably his remarks on the importance of feeding the imagination with healthy, stimulating food, and cultivating a recollection of beautiful proportions and details, but always with the exercise of a discerning criticism on everything architectural. The power of being able to appreciate and differentiate good from bad work is all important, and may be acquired in a very great measure by careful study.

It is in this selection of what most appeals to one's individual taste, and in the carrying on a step farther of what someone else has well begun, that the personal idea and imagination of a man is displayed. In our daily peregrinations how rarely do we see a domestic building that gives real pleasure. The majority of small houses are too evidently built without the assistance of an architect, and are monuments (fortunately not lasting) of the vulgarity of our popular taste. The want of simplicity that is to be observed in many of our suburban houses is painful in the extreme.

It is a seeming paradox, though nevertheless true, that plain things often cost more than those that are well named "fancy articles." I would wage a crusade against the wretched little pretentious houses everywhere springing up, bedecked with what the Yankees appropriately term stone "trimmings." Instead of badly executed masonry, with incised carvings of atrocious design, framed in brick-work smothered with red-ochre and tuck pointing, one sighs for some honest, well-built, plain wall surface. And this leads to the oft-repeated axiom that breadth and simplicity, with a concentration of the interest in one or two important features, is the elemental principle of all good design. It is most difficult to obtain an effect of breadth in a small house unless it be simply roofed, and unless every atom of plain wall surface be religiously preserved.

The value of a simple and beautiful outline should also never be lost sight of, and the eye must be carefully trained and accustomed to discriminate between good and bad proportion.

Scale, or the proper proportion of the various parts, is also essential to good designing. Unnecessarily large doors and windows, and coarse detail of all kinds, destroy the scale of a house. It is an excellent reminder of the relation of parts to a whole, to sketch a human figure to scale on the elevation or section that one is designing.

It may be instructive to mention here a few of what I consider the most noticeable sins against good detail and proportion. For instance, the custom of giving too great a projection to the oversailing courses of a chimney-stack is entirely a matter of want of thought. The block of the stack is more often seen angle-wise than directly in front, and consequently the projections generally appear exaggerated, and cause a top-heavy appearance. The shape of windows is not considered sufficiently; they too often appear to have been determined on plan without a proper regard having been taken of their height. Neither do the sash-bars divide the panes into pleasant proportions.

And in internal detail we see unnecessarily huge architrave mouldings around doors and windows, deep and coarsely moulded skirtings, coved cornices spreading over the ceiling, and centre flowers plastered up with clumsily modelled ornament. These and their like destroy the apparent size of our rooms, and are meaningless repetitions of an outworn convention. Fireplaces are needlessly spoilt by the introduction of clumsy marble chimney-pieces with cast-iron grates of pretentious design. This is unpardonable nowadays, when cheap and excellently simple designs in cast-iron may be obtained from many of our best manufacturers.

The elevational treatment of a house, which should be borne in mind from the first inception of the plan, is governed in a great measure by the following considerations: (1) Whether the plan be symmetrical or otherwise; (2) The heights of the floors; (3) The materials to be employed, and the arrangement of the roofs and their pitch, the latter being dependent on the nature of the roof covering; and (4), probably the most important factor of all, viz., the form of window to be adopted. This last item I consider of so great importance that I propose to divide my articles somewhat as follows:—

1. A country cottage of red brick with tiled upper part and roof, the windows to be of wood with iron casements.
2. A brick house with sash windows, the frames of which are to be designed to show.
3. A bungalow with wood casements, rough cast walls, and a slated roof.
4. A brick and tile house, half timbered above. And
5. A stone or brick house with stone mullion windows and iron casements.

Regarding the choice of materials, I entirely agree with what Mr. Lanchester says as to the advisability of always adopting, as far as possible, local methods and products. Such buildings not only harmonise better with their surroundings, but are also generally less costly than when material has to be imported from a distance. But, whether we have to bring our materials from afar or not, a little time and trouble spent in their selection is amply repaid in the resulting building. It is here that the architect's judgment and experience is so invaluable: for well-chosen materials, properly used, will go far to redeem an otherwise commonplace design. At the same time much discretion had to be exercised in the choice of such materials, for they should not only satisfy the eye, but must also be the best that are available for their purpose.

In the next article I propose to deal with the design of a cottage for a rural district, and to give explicit details of the windows, doors, eaves, tile hanging, and chimney stacks for such a building.

(To be continued.)

OBITUARY.

SIR HENRY DOULTON.

THE Art world suffers a conspicuous loss in the death of Sir Henry Doulton. The head of the renowned firm of potters, Messrs. Doulton and Co., died a week ago to-day; he bequeaths to Art pottery the richest legacy which has, within recent years, ever tended to its development and popularisation. In his death, London loses also one of its "captains of industry." To Sir Henry was mainly due the success which his famous firm has attained, and also the artistic merits of its productions. The deceased knight had also many endearing qualities as a man and as a citizen, but his name is mostly identified in the public mind with the firm of Doulton and Co., and it is in this connection that his name will be honourably handed down through long successive years.

THE SON OF A LAMBETH POTTER,

Mr. John Doulton, Sir Henry was born at Vauxhall in 1820, and after leaving University College School joined his father's business, preferring to become a practical potter rather than accede to the desire of his parents to take Orders or to be called to the Bar. He went through every kind of work, having to turn his own footwheel, and after two years succeeded in making a twenty gallon receiver, and for some time made the whole of the large chemical ware. He constructed the first steam wheel that ever was made, with the assistance of a man named Berry. Among his early customers was John Bennet Lawes, whom he never met for fifty-five years, till one day, not long ago, at Marlborough House. When twenty-six years of age Sir Henry initiated the

MANUFACTURE OF SANITARY PIPES,

in the making of which he obtained his first great success. Twenty-four years later—in 1870—he took up and greatly developed the production of what is now known all over the world as "Doulton ware"—ornamental pottery in vases, jugs, cups, &c. A Doulton vase is generally made of a rather hard gray or brown ware, on which a sharply incised realistic design is drawn—a bird, or a group of rushes, or what not—and either a part or the whole is then richly enamelled in blue or dark brown. As is commonly the case with pottery, the originality of the firm of Doulton was not allowed to pass unchallenged; and a claim of priority was put forward for what was known as the Martin Pottery, a very similar manufacture. Rightly or wrongly, however, the great public decided to call the material by the name of Doulton ware; and as such it has long had immense vogue. Its merits are indisputable, and though it would be probably be better if it were somewhat rarer, it is honest, useful, and in good taste. Sir Henry Doulton's

ART WORKMANSHIP

revolutionised the trade, and the Council of the Society of Arts made him a vice-president, and he became a member of the Cordwainers' and Turners' Companies, a Chevalier of the Legion of Honour, and an Associate of the Institute of Civil Engineers. He took great interest in Exhibitions, from that of 1851 downwards, and the display of his goods added to his fame. In 1871 the Queen purchased some Doulton ware, and the demand rapidly grew. In 1876 a magnificent collection was sent to the Philadelphia Exhibition. But Sir Henry Doulton's energies were not wholly devoted to business; he was something more than a successful business man, and in addition to church and other work, he was Almoner of St. Thomas's Hospital. He was fond of riding and travel, and thoroughly an *amateur* with the literature of the day. Poetry was his specially favourite study, and he used often to say, when asked to lecture on Pottery, "I would rather lecture on Poetry." The head of Doulton and Co. was knighted on the occasion of the Queen's Jubilee in 1887. Latterly, Sir Henry has spent much of his time at his country house, Woolpits, Ewhurst. The funeral took place on Monday, at Norwood cemetery.



CAMPSBOURNE SCHOOLS, HORNSEY. EXTERIOR OF BOYS' AND GIRLS' DEPARTMENT.

NEW SCHOOLS AT HORNSEY.

CAMPSBOURNE SCHOOLS, which were opened recently, and of which we give illustrations, have been built upon a site acquired some time since by the Hornsey School Board, containing an area of 2a. 1r. 0p., and have the advantage of entrances from Boyton Road and Eastfield Road, with frontages to Newland Road on the north, and to the proposed extension of Nightingale Lane on the west. With so large an area, the question of the plan for a school to accommodate over 1400 children at once arose, and, under the advice of its architect, the Board decided to erect the building in two blocks, one to contain a two-story building for the Girls' and Boys' Departments, and the other a single story building for the infants. This scheme was not adopted until it had been thoroughly thought out, and as the Board was advised that such buildings would be somewhat cheaper than a three-story building, this plan was decided upon. Beyond the above two blocks, a caretaker's house has been erected at the entrance from Boyton Road, and separate buildings have been built for manual instruction and for cookery teaching. Each of the three departments is provided with a separate hall for assembling and other purposes.

THE GIRLS' DEPARTMENT

is situated on the ground floor of the two-story building, and contains accommodation for 450 scholars, in eight class-rooms, which are grouped round the central hall. This hall is 86ft. long by 28ft. wide, and 15ft. high in the clear, being well lighted from the ends as well as from borrowed lights from the class-rooms. At the south end of the hall, cloak room accommodation is provided, and at the north end a head mistress's room and lavatory. The approach to the boys' department, which is situated on the first floor, is from the north end of the building by two fireproof staircases. This department is a duplicate of the girls' department, and will contain the same number of scholars. The roof to the large hall on the boys' floor has been constructed as an open timber roof, which gives the hall increased height and character. Assistant masters' and

mistress' rooms are provided on the mezzanine floor of this building, and caretaker's store rooms.

THE INFANTS' BLOCK

provides accommodation for 510 scholars, in seven class rooms, and a large assembly hall, measuring 50ft. by 25ft., is also provided for their use, with cloak-rooms and lavatories in convenient positions. On the level of the class-rooms is a head mistress's room, and on the mezzanine floor a cheerful room has been provided for the assistant mistresses. One of the features of this department is a baby's room, fitted with circular galleries, on the lines of a theatre, to facilitate the teaching of very young children. The manual instruction room contains accommodation for twenty-four scholars, and beyond ample space for the benches a gallery is provided for teaching purposes, with a cloak-room and wood store adjacent. The cookery kitchen contains accommodation for forty scholars at a time, and a scullery has been erected adjacent to the kitchen. Cloak-room accommodation is also provided for this building. The whole of the class rooms throughout are heated with "Boyd's" patent hot-air stoves, and the halls and corridors by a low pressure hot water apparatus, worked by boilers situated in the basements of each block of buildings. All the

CLASS ROOMS

are designed so as to be lighted from the left hand, and all have full provision for fresh air inlets, and extract flues from each room. The buildings, externally, have been carried out in stock brickwork, with red brick dressings and red "material" finishings. Internally, the walls are built to a dado height in brown salt-glazed dipped bricks, and above such dados are finished with buff Gamlingay bricks. The lighting has been supplied by gas; the "Clapton" lights being used throughout. The drainage has been carried out on the most approved principles, from the architect's drawings; the closets and lavatories used being those manufactured by Messrs. Adams and Company, of Old Queen Street, Westminster. The amount of the contract for the work was £20,467, including the whole of the accessory buildings and the playground walls and finishings, which works out at the reasonable cost

of £14 10s. 3d. per scholar, and including the cost of the fine freehold site the sum is £15 18s. 8d. per scholar. Comparing this cost with that of recent Board Schools it will be seen that it is a low one, and justifies the advice given by the architect to the Board, as to erecting the buildings on the principle he advised. The whole of the works have been executed by Messrs. Kirk and Randall, of Woolwich, from designs prepared by Mr. Howard Chatfield Clarke, of 63, Bishopsgate Street Within, E.C., under whose personal direction the works have been carried out. The heating was supplied by Mr. W. J. Fox, of South Place, Finsbury, E.C. The "material" staircases and dressings were executed by the Patent Impervious Stone Company, of Victoria Street, Westminster. The lighting and the whole of the gas-fittings were carried out by Messrs. Strobe and Company, of Osna-burgh Street, N.W., and the hot air grates were supplied by Messrs. Hendry and Pattison, of Marlborough Mews, Oxford Street.

The first list of subscriptions towards the building fund of the new cathedral in Loughrea amounts to £5600. About £14,000 more will be required to complete the edifice, which will be one of imposing dimensions and great beauty.

By whose authority and for whom are certain windows in the west front of the Palace of Westminster, facing the Abbey, being disfigured by the erection of cases over the stonework, in which it is apparently intended to place sun-blinds?

It is reported that the London and North-Western Railway Company has decided to tunnel Shap Fells, Westmoreland, the climbing of which involves so much delay to through traffic. The tunnel will be over nine miles long, and will take several years to construct.

The manager of the London County Council Works Department having reported that the architect's estimate of £4170 was, in his opinion, not sufficient for the work specified for the enlargement and alteration of Hampstead Fire Station, public tenders were invited. The lowest tender was £4955, and the highest £5372.

SURBITON "MUNICIPAL OFFICES" COMPETITION.

THE awards in this competition are as follows: Selected design, with premium of £15 to No. 25, Messrs. W. W. A. Forsyth and H. Maule, 16, Great Marlborough Street, London; second, with £30 premium, No. 11, Messrs. C. W. Wimperis and H. S. East, London; third, Messrs. W. E. Hewitt and Arthur H. Ryan-Tenison. That the selected design is awarded only the second premium is due to the fact that the Council has not endorsed the assessor's award, which was made to No. 11, Messrs. Wimperis and East, but has chosen the design placed second by its assessor, Mr. E. W. Mountford, although the premiums remain as originally allotted. Twenty-six designs were sent in, from which the assessor selected the three above mentioned, and in his report Mr. Mountford spoke of them all as having particular merits to recommend them, and finally decided on No. 11 as holding the greatest advantages and being the design best fulfilling the requirements of the Council. The plans sub-committee, however, reported that it could not endorse the recommendation that No. 11 should be commissioned to carry out the work, being of opinion that No. 25 was preferable, particularly with regard to its elevation, as bearing upon the position of the site. Subsequently Mr. Mountford addressed a protest to the committee, from which the following is an extract: "The reasons for which I prefer the design I placed first to that placed second in the competition are as follows: (1) The plan is more compact, and in respect of the arrangement of the offices for the Council, clerk, and surveyor respectively, is distinctly better than the other; (2) as regards architectural merit, it is in every respect superior, showing far more originality and knowledge of detail; (3) owing to its simplicity, it is distinctly less costly to build; (4) for the same reason the cost of future maintenance will be less." The Council, however, after some discussion, approved the vote of its sub-committee, and the awards have been granted as above stated. The whole of the designs submitted are now on view at the Gables Theatre, opposite Surbiton Station.

THE BOROUGH POLYTECHNIC.

WELL-DESERVED gratulation took place on the occasion of the annual prize-giving at the Borough Polytechnic, on Monday week. The ceremony was performed by Professor Stuart, M.P. Previous to the distribution our representative visited the workshops and laboratories, which, in some instances, though cramped for room, turn out some really good work. The engineers' shop is one of the best in the metropolis, being ample in dimensions and well appointed with apparatus. In the bricklayers' and masons' shops several arches for windows and doors were in process of construction, the finish of which was all that could be desired, while an examination of the working drawings revealed that they were very clearly made out. In the carpenters' shop, again, much good work was shown, while in the drawing office of the engineering section every attention appeared to be shown to ensure the proficiency and comfort of the students, a remark which also applies to the Art school, while the work shown in the sections which are not within the pervue of this journal were equally satisfactory, demonstrating beyond all question that the Borough Polytechnic must exercise a vast power for good in its district. In the course of his opening address, Mr. Edna Bayley, L.C.C., said that while last year they had a total of 2400 students in all the classes, they had this year already entered no fewer than 2700, and he anticipated that they would have half as many again before the books were closed. Since the Polytechnic was opened in September, 1892, more than 10,000 students had passed through its classes. This year they had gained 23 exhibitions given by the London County Council, as against seven last year. From the profit—£2500—which they made out of the Jubilee seats, and from other sums which had since come in, they proposed to erect a gymnasium, workshops, physical drill rooms, a laboratory, and cookery class rooms, and, as an evidence that their classes reached the people for whom they were intended, he pointed out that in their trade classes there were over 650 actual workers in the several trades for which classes were held, and 90 per cent. of the students

attending the Science and Art classes were workers in various trades and industries. In only one class had there been a falling off, viz., in letterpress printing, which had dropped from 60 last year to 7 this. Having alluded to the establishment of University Extension lectures and a day continuation school for boys, Mr. Bayley called upon Mr. Mellis to read the report, the principal points in which are appended:—In the City and Guilds of London Institute examinations, 354 papers were worked and 194 passes gained; in the Science and Art Department examinations, 159 papers were worked and 107 passes gained; in the Society of Arts examinations, 75 papers were worked and 64 passes gained; in the National Health Society's examinations, 35 papers were worked and 31 passes gained, the total being 620 papers worked with 396 successes. For carpentry and joinery, A. Watson took second honours, £5, and a bronze medal; for painter's oils, colours, and varnishes, J. T. Keep took second ordinary, £1, and a bronze medal, and C. R. F. Strube a first ordinary, £1, and a silver medal; and for metal plate work, G. H. J. Denman took a bronze medal, with a third ordinary, and S. Pairblort a first ordinary, £2, and a silver medal, the Polytechnic taking altogether thirteen medals, the largest number gained by any corresponding institute in the United Kingdom. During the past session there has been a steady growth in the number of students attending the trade classes, and the number of medals gained is in itself evidence of sound work, because they have been won by students who have done good work for two or three years, and are thus the result of continuity of study. In conclusion, it may be noted that of the holders of the twenty-three Technical Education Board's evening exhibitions they are all engaged in some trade. Professor Stuart, M.P., delivered a short address, in the course of which he remarked that prizes fell to few, but the prize of education, and the ability to face the world, was open to every intelligent worker. The students of the Borough Polytechnic were engaged rather with the scientific than the literary side of education, though the latter was certainly not neglected, for there were libraries opened, and lectures delivered. The object of their literary train-



CAMPSBOURNE SCHOOLS, HORNSEY. EXTERIOR OF INFANTS' DEPARTMENT.

ing was to impart a capacity to read books, and listen to discourses with the greatest possible advantage. With this purpose in view a student, after hearing a lecture, should try and think it over in his mind from the beginning, and this would impress it on his memory. Similarly, in reading a book one should, before going to sleep, mentally repeat all he had read that day, and make a *précis* of it in writing. As regards the scientific side of their work, he was glad to see the practical training united with the theoretical; such a union greatly heightened the value of their work. All scientific and technical education consisted of three portions—observation, reasoning, and experiment—and the opportunities for attempting these three things lay ready to everybody's hand. Many failures in life resulted from neglect to seize such opportunities, and it was the great aim of polytechnics to provide working men with fair opportunities, and to see that they took advantage of them.

STATION IMPROVEMENTS AT LEEDS.

CONSIDERING its size and importance, Leeds cannot greatly boast of its railway station accommodation. Something, however, has been done of late to improve matters. What the North-Eastern has accomplished in respect of extension, the Great Northern and Lancashire and Yorkshire Railway Companies have now effected in respect of rearrangement. The change may be regarded as a notable one, seeing that space is limited. Certainly everybody who is in the habit of travelling to and from the Central Station will appreciate the efforts made to meet their convenience and comfort. Broadly speaking, the alterations are as follows: The roof has been raised to the extent of 6ft., the station space, apart from the platforms, has been considerably enlarged, the arrival platform has been widened, a spacious new cloak-room has been provided, the booking halls have been rendered much more commodious, the waiting-room accommodation has been and is being increased—the work is not quite complete—the parcels-office has been removed to a more convenient quarter, and the public will no longer be incommoded by goods of various kinds awaiting transference to train or van when the station is being entered. The most difficult undertaking was the raising of the old portion of the roof. A large quantity of glass has been inserted in the new roof, the old cast-iron girders have been taken out and truss girders inserted, thus giving the overhead arrangement a lighter appearance as well as brightening the station below. To furnish more space for people who throng the station at certain times—especially on Saturday evenings—the barriers at the head of the platforms have been set nearer the trains; moreover, the area available is further cleared by the provision of a fine cloak-room near the steps, piles of commercial luggage that formerly adorned the open space being thus removed under cover. This alteration has meant the erection of a new structure on one side of the station front. The edifice extends to Wellington Street, and covers the steps by which so many passengers prefer to leave the premises when they arrive by train. The Lancashire and Yorkshire portion of the building, immediately adjoining, has also been improved; the booking and parcels offices are both enlarged and rearranged. The site of the joint refreshment department, too, has been changed. Refreshments may now be obtained in rooms situated almost where the old cloak-room stood, on the left as one passes through the G.N. booking hall, while the G.N. parcels office is transferred from the old corner to a position higher up the yard on the hotel side, where, under a new verandah, away from anxious passengers, business may be carried out with greater facility and despatch. Close by, but in the station itself, new ladies' waiting-rooms are rapidly approaching completion. Again, by setting back and lengthening the waiting-rooms on the arrival platform, another desirable improvement has been brought about.

Professional Items.

BARCALDINE.—The work in connection with the restoration of the ancient and historic Barcaldine Castle is being rapidly proceeded with, under the direction of Mr. Butler, architect, Perth. The castle, which is situated near the highway between Connell Ferry and Shian Ferry, is a rare example of ancient Scottish Architecture, and was built in the sixteenth century by Sir Donald Campbell of Glenorchy. It has been roofless for many years, but since coming into the possession of the present owner the work of restoration has been gradually proceeded with. The roof is now complete.

DERBY.—The brewing firm of Offilers Ltd. are now erecting spacious offices at their establishment in Ambrose Street. The ground floor will be devoted to the clerical staff. The first floor comprises a handsome board room for the Directors, having a fireproof floor. The walls will be covered with massive moulded panelling, all in pitch pine. The other offices are fitted with every modern convenience. The building is constructed in red bricks, with stone dressings to the doors and windows. Mr. Geo. Yates Mills, of Old Bank Chambers, is the architect, Mr. George Durant, Grange Street, Derby, being the builder.

DOVER.—A conference has taken place at Dover between the head officials of the London, Chatham, and Dover Railway and the Dover Harbour Board. The railway company is endeavouring to develop a scheme for a new joint station, which is to be erected at a cost of £100,000. The matter has been talked of for years, but is only now taking practical shape. The railway company intends to apply for powers to close a crossing known as the Crosswall. To carry out this scheme a portion of the electrical tramline will have to be diverted. The company intends also, it is stated, to widen and strengthen two of its bridges in the town, thus facilitating vehicular traffic.

DUBLIN.—The heavy-looking sombre structure, in Burgh Street, which has figured in history as Conciliation Hall, and later on as a corn store, has now been transformed into a place of entertainment, as the Grand Lyric Music Hall. The first thing that strikes the visitor is the new façade, painted in light, well-chosen colours, surmounted by an emblematic figure. The various entrances are under the shelter of a glass and wrought-iron verandah. The work has been executed by the firm of Messrs. Meade and Son, working from the plans of Mr. W. H. Byrne. The verandah was supplied by Mr. M'Loughlin, Brunswick Street. The interior of the hall is handsome and roomy. The proscenium opening is a notable piece of work; it is surmounted with a large figure of Music, flanked by two winged figures with trumpets, the sides being supported by two half figures, heroic size, and draped with festoons. The platform is semi-circular, and the roof coved so as to throw the voice of the artists out into the auditorium. At the back is a balustrade, from which rise pilasters that in turn support a highly ornamented cornice and the roof. Paintings of landscapes will be introduced between these pillars to give an idea of depth. The lighting of the stage has been a subject of careful consideration between the architect and the contractors. The ceiling is a strikingly successful example of elaborate ornamentation, and the same expression fairly describes the scroll work in front of the balconies, the cornices round the hall, and the decorations of the many panels throughout the building.

The erection of the new premises in Dublin of the National Telephone Company, facing Temple Bar and Crown Alley, and directly in rear of the Exchange, has almost been completed. The new structure measures about 85ft. by 65ft., and it has a height of about 76ft., while directly to the eastward of it is a cleared space extending for at least 80ft. on which the Company intend to build in continuation of

the great structure now approaching completion. In the frontage Portmarnock brick, with granite dressings, has been used, while inside the brick used has been obtained from Kingscourt and Harold's Cross.

DUFFIELD.—The Church of All Saints, Duffield, has been reopened after being closed for a considerable period for extensive alterations and renovation of the fabric, which have been carried out on an extensive scale at a cost of about £4300. The church itself is not, from an exterior view at any rate, an attractive building, being a combination of styles without any distinct character. It has weathered the storms of several centuries, and fifty years ago it was found necessary to effect its complete restoration, and an elaborate scheme was prepared and subsequently carried out. The building is especially interesting to archaeologists on account of its historic associations, portions of the original structure being yet traceable. Few additions have been made of any material consequence since 1847, and it was deemed expedient, as on that occasion the structural alterations were only such as were absolutely essential, to modernise the fabric of the church to some extent. The improvements made include a new chancel screen and pulpit of carved oak, and three beautiful stained glass windows in the chancel. In addition to these a handsome screen of carved oak has been placed at the west entrance to the church, and the choir stalls have been superseded by similar material. The flooring has been taken up, and black and white marble substituted, with red marble steps in the approach to the chancel, and Hopton's stone paving introduced in the paving of the body of the church, with a mixture of red marble. An entirely new high-pressure heating apparatus has been fixed, and a quantity of plaster has been removed, so as to bring into view the fine old timber roof of the chancel. A new system of gas lighting has also been adopted, and a beautiful stained east window from the study of Mr. C. E. Kemp, and a reredos and altar and rails of carved oak, are innovations greatly welcomed. The whole of the work has been carried out by Mr. Robert Bridgman, of Lichfield, the architectural matter receiving the attention of Mr. J. A. Scott, son of the late Sir Gilbert Scott.

ERDINGTON.—The foundation-stone of a boys' new department, which is being erected in connection with Erdington Board Schools, has been laid, and at the same time a medallion of the Queen, which has been let into the wall in commemoration of her Majesty's Diamond Jubilee, was unveiled. Mr. C. Whitwell is the architect. The buildings in course of erection comprise a boys' department to contain 310 scholars, a large room or workshop for manual instruction, and a cookery centre. As soon as these are ready for occupation the present boys' school is to be extended so as to accommodate 120 additional scholars, and it will then be used as a girls' school. New teachers' rooms are also to be added and additional cloak-rooms formed. The amount of the builder's contract (inclusive of boundary walls, outbuildings, forming playground, warming, &c.) is £5629.

FORT AUGUSTUS.—The inhabitants of the picturesque village of Fort Augustus have just erected a drinking fountain in honour of the Jubilee. The fountain stands on a commanding site near the top lock of the canal, is about 6ft. in height, and is surmounted by a powerful lamp. The design of the fountain is by Messrs. Walter Macfarlane and Co., Glasgow.

HAMPSTEAD.—The Central Public Library in Finchley Road, Hampstead, was opened a few days since, the foundation stone having been laid exactly a year ago. The architect was Mr. A. S. Tayler. The Central Library is a two-story building of the domestic Tudor style, built of Cranleigh red brick, with dressings and mullions of Portland stone. It stands at the junction of Arkwright Road and Finchley Road, with a frontage to both thoroughfares, being in almost the centre of the parish. The

upper ground floor comprises the reference library and reading-rooms, the lower floor accommodating the lending library, with various stores and offices. The reading-room is light and lofty, and will be devoted to newspapers and railway time-tables. The reference library, the finest room in the building, is 50ft. long, 30ft. wide, proportionately high, and lighted by windows on every side. The building contract was for £4954, a sum more than paid by Sir Henry Harben's gift of £5000. About one third of the site is left for future treatment.

IPSWICH.—The Ipswich Dock Commission has decided to construct the following contingent and other works, viz.:—(1) Swing bridge over new entrance lock. (2) Pier or jetty from south end of promenade—both these works to be in substitution for the somewhat similar works authorised by the Act of 1877. (3) A quay or landing stage on the north-west side of the dock, with necessary buildings, cranes, and appliances. (4) A swing bridge over the old entrance lock, with any necessary alterations to such lock. (5) Continuations of the tramway from the South-east Road of the Dock, along the South Road across the swing bridge to a junction with the proposed dam, and with a reclamation of sufficient of the south-east corner of the dock to obtain the required curves; also continuation of such tramway along the Ballast Wharf, across the swing bridge over the old entrance lock, to a junction with the tramway in the East Road; also continuation of the tramway along West Road of New Cut from termination of present Griffin tramway, with all necessary doublings, crossings, and sidings.

LAXEY, ISLE OF MAN.—In a limited competition for the Primitive Methodist New School Chapel, the design of Mr. T. Taliesin Rees, Birkenhead, was selected. The building is planned with a central hall and five class rooms, divided by means of folding glazed screens, so that the whole can be converted into one large room capable of accommodating 500 persons. In the rear are kitchen, lavatory, committee room, heating chamber, &c. The materials will be local stone, finished in cement, and pitch pine, varnished, for internal woodwork; heating by low pressure hot water. The style is late Gothic, with traceried windows, filled in with leaded lights.

LISKEARD.—The Borough Surveyor (Mr. T. McMeikan), in accordance with the directions of the Town Council, has made a careful inspection of the tower of the parish church, and handed in a written report, in which he stated that several cracks are apparent in different parts of the masonry, due, doubtless, to the defective foundations, this being particularly noticeable in the north and south walls, which were bulging seriously. A considerable portion of the masonry is of a very poor character, and portions may fall at any time; and the stability of the tower had been so seriously interfered with as to render it dangerous to persons in the immediate vicinity, more especially in the west end of the church itself. A copy of the report has been sent to the vicar and churchwardens, with a request for a reply.

NEWCASTLE.—The Tyne Improvement Commissioners have decided that the portion of the north pier at the mouth of the river, destroyed by the gales last winter, should be rebuilt at an estimated cost of £300,000, the work to be done by contract. They have appointed Sir J. Wolfe Barry and Messrs. Coode, Son, and Matthews, London, as their engineers for carrying out this work.

PRESTON.—The award in the arbitration which took place a few weeks ago, in the case of the London and North-Western and Lancashire and Yorkshire Railway Companies and Messrs. William Harding and Co. Limited, Fishergate, has just been received. The companies proposed to take a piece of land

occupied by Messrs. Harding and Co., which at present causes an awkward curve in the line, and in the vicinity of which several accidents have taken place. The companies propose to straighten and widen the line, and to enable them to do this they sought to acquire the property in Fishergate. Mr. Daniel Watney, of London, who was the arbitrator, has sent in his award as follows:—The companies to pay £23,264, the front portion to be taken over on December 1st, and the rest on June 1st.

RHYL.—Plans have been approved for the erection of an arcade containing some forty shops and a theatre, constructed on the latest principles, at a total estimated cost of about £20,000. The arcade will extend from the Parade at a point near the Queen's Hotel to Sussex Street. The present Queen's Hotel will be extended over the entrance to the arcade, thus adding about forty additional bedrooms to the accommodation of the hotel. The extension will be carried out in character with the imposing Architecture of the existing building. The theatre will be capable of holding from 1500 to 2000 people, and will be one of the most modern and compact in the provinces. Messrs. Darbyshire and Smith, of Manchester, are the architects. The arcade, which together with the theatre will be lit throughout with electric light, will be roofed with glass, and so arranged and constructed as to make it a fashionable promenade. This ambitious project is the undertaking of Councillor J. S. Greenhalgh, of Rhyl and Rochdale.

SHEFFIELD.—At Carver Street Wesleyan Chapel, the foundation stones have been laid of a building which is to contain new schools and a lecture hall. The scheme involves an outlay of something like £4500. The new buildings are being erected upon a plot of land adjoining the present schools and fronting to Rockingham Street. On the ground floor, entered by a large central doorway in Rockingham Street, there will be two large meeting-rooms and four classrooms, with a central hall available for physical exercises. In the centre opposite the front entrance there will be a wide stone staircase, which extends to the top of the building. The lecture hall, on the first floor, will be 50ft. square, lighted on three sides by large circular-headed windows, and fitted with a handsome rostrum. The walls, to a height of 5ft., will be finished in Keen's cement, and the ceiling will be panelled and moulded in pitch pine. Over the lecture hall will be the boys' and girls' school, consisting of a central hall, size 50ft. by 25ft. by 27ft. high, lighted at each end by large arched windows, proposed to be filled in with cathedral-tinted glass. On each side of this central hall provision is made for eight classrooms, four being on the hall floor and four on the gallery floor, approached by two staircases and balconies. Alterations and additions are to be made to the old buildings. Both new and old buildings are to be heated on the low-pressure water system. The new buildings are to be of special red brick, relieved with pilasters and moulded and arched panels, and by brick and stone cornices and strings. The contractors for the mason and bricklayers' work are Messrs. Malthouse and Ward, for the joinery work Mr. Enos Moore, for slating Messrs. Stanforth and Lee, for plastering Messrs. Hudson and Dore, for plumbing Mr. Hickson, for heating Messrs. Newton and Chambers, for furnishing Messrs. Redmayne, May, and Co., and for lighting the Gas Company, all of Sheffield. The architect is Mr. Herbert W. Lockwood, of Pinstone Street.

A special course of ten lectures on Architecture are to be given by Mr. Hugh Stannus, F.R.I.B.A. (teacher of architectural modelling at the Royal Academy, lecturer at the Royal College of Art, South Kensington, &c.), commencing to-day, the 24th. Each will comprise three parts, viz., half an hour for examination of work, an hour for the lecture, and another half an hour for conversation on the subject of the lecture. They have been arranged entirely by the Sheffield Society of Architects and Surveyors.

Trade and Craft.

MESSRS. EASTWOOD AND CO. LIMITED.

The offices of this firm, situated at Belvedere Road, Lambeth, are being rebuilt, and, consequently, the firm has temporarily removed to 61, Temple Chambers, Temple Avenue, Victoria Embankment, E.C., where, for the present, all communications should be addressed.

THE KRONAND METAL COMPANY.

The Kronand Metal Company Limited is showing, at the Stanley Show held at the Agricultural Hall, a large assortment of non-rusting hubs, pedals, tubes, rims, spokes, lamp brackets, &c., manufactured of its well-known Kronand metal. The metal polishing, equal to silver, wears white throughout, and requires no plating. Although since the introduction of this metal at the last Stanley Show many other alloys have been placed upon the market, claiming the same qualities as the celebrated Kronand, this Company maintains that Kronand is still the whitest and strongest white metal. The Company, being proprietor of one of the most complete works in Birmingham, is able to manipulate the metal from the ingot to the finished article. The works of the Kronand Metal Company Limited, at Nechells, Birmingham, are now nearly completed, and comprise rolling mills, tube and wire drawing plant, stamping, casting, and finishing shops, with the latest up-to-date machinery, covering in all more than three acres.

THE CONDUIT AND INSULATION COMPANY LTD.

One of the principal productions of this Company, whose offices are at Ormond House, 63, Queen Victoria Street, E.C., is the Steel-Armoured Insulating Conduit, which is made under the Johnson patents. It is described as the latest result of the gradual development of the "Interior Conduit" system of electric wiring, and is a great improvement upon the iron-armoured conduit first put on the market, as both the insulating lining and the steel armouring are considerably reduced in thickness, but without any decrease of efficiency. The outside diameter of the Insulated Conduit is the standard for gas piping, so that the same tools and standard sizes of pipe hooks, saddles, &c., obtainable from all ironmongers, can be employed; it has however been found desirable to alter the standard gas thread, and one has been adopted which is suited to the thinner steel armour and better fitted to electrical requirements, the screw thread used in these "electrical pipes" being based on that employed in connection with brass work, which is lighter in cut and contains more threads to the inch than that used for iron. This lighter and longer thread has the advantage of making the coupling sockets connecting the lengths more watertight. Moreover, in the case of the larger sizes of conduits, it reduces the labour of thread cutting, so that one man with ordinary tools can quickly and easily cut and thread all sizes of conduit necessary upon an installation. A special die plate, to cut the lighter thread, can be purchased at a moderate sum, and it can be used in the standard die stock already possessed by those installing gas or water-pipe systems. The Steel Armoured Insulating Conduit is further recommended for its labour advantages over gas and water piping in respect to handling and bending. All the sizes (from $\frac{1}{2}$ in. to $1\frac{1}{2}$ in.) are manufactured in 10ft. lengths, each end is reamed and threaded, and one coupling is supplied with every length. Another special feature of the Steel Armoured Insulating Conduit is its applicability to all systems of electrical distribution—continuous and alternating; and it is further recommended for durability, safety, convenience, and economy. The insulating lining is a non-conductor of heat, is not affected by climatic changes, and is waterproof. The Company manufactures all the necessary fittings, which are made under the improved method.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BARNES (Surrey).—For the erection of six shops and dwelling-houses on the Elm Grove Estate, Rocks-lane, Barnes. Messrs. F. and W. Stocker, surveyors, 90 and 91, Queen-street, Chiswick.

J. Watt ... £6,125 J. Edwards ... £5,535
W. Watson ... 5,975 C. R. Gurr, Chiswick ... 5,150
* Accepted.

BELFAST.—For the erection of a new City Hall, for the Corporation. Messrs. E. Thomas and Sons, architects, 7, Queen Anne's-gate, Westminster. Quantities by Mr. W. H. Stephens, 13, Donegall-square, N. Belfast.

H. and J. Martin, Limited, Ormeau-road, Belfast. £154,864
* Accepted.

BIRMINGHAM.—For erecting new dining-hall and stores at the Workhouse, for the Guardians. Mr. W. H. Ward, architect, Paradise-street, Birmingham. Quantities by Messrs. Harris and Harris, Bennett Hill, Birmingham.

F. Nicholls ... £2,735 H. Vickers ... £2,325
W. J. Whittall ... 2,725 J. Atkinson ... 2,363
R. Fenwick ... 2,690 W. Nicholls ... 2,377
T. H. Whittaker & Co. 2,600 Smith & Pitts, 420 and
W. Bishop ... 2,545 421, Mosely-road* ... 2,277
* Accepted.

BOURNMOUTH WEST.—For the erection of a building for Mr. J. Passmore Edwards, Mr. Frederick Warman, architect, Spencer House, Highbury-corner, N.

McCormick and Son ... £2,030 W. E. Jones and Son £1,738
George and Harding ... 1,842 McWilliam and Son* 1,650
W. Hoare ... 1,776
Jenkins and Sons ... 1,776
* Accepted.

BRISTOL.—For the erection of school buildings, Westbury Park, for the Bristol School Board. Messrs. La Trobe and Weston, architects, 20, Clare-street, Bristol. Quantities by Mr. W. L. Bernard.

H. A. Clark ... £2,700 F. Walters ... £2,470
H. A. Clark ... 2,595 H. Hughes and Weeks ... 2,470
Wilkins and Goshing ... 2,590 E. Love* ... 2,439
Cowlin and Sons ... 2,480
* Reduced to £2,179 ss. 9d. and accepted.

BRISTOL.—For the erection of a laundry at the infirmary, St. John's Hill, West Wansborough, for the Guardians of the Poor of the Wandsworth and Clapham Union. Mr. T. W. Aldwinckle, architect. Quantities by Mr. W. G. Edwards.

W. Whiteley ... £6,068 Kirk and Randall ... £5,535
E. P. Bullard and Son ... 6,122 W. Norton ... 5,380
S. Dockerill and Son ... 5,815 H. Wall and Co. ... 5,388
E. Triggs ... 5,780 W. Johnson & Co., Ltd.* 5,250
* Accepted.

LONDON.—For the erection of a factory at Southwark Bridge-road, for Messrs. Cropper and Co. Messrs. Cropper and Bolton, architects. Quantities by Mr. J. Rookwood, Bloomsbury, W.C.

Mattock Bros. ... £8,897 Edwards and Medway £7,933
Colls and Sons ... 8,440 S. Powell ... 7,960
Lascelles and Co. ... 8,387 Turtle and Appleton ... 7,906
F. G. Hoskins ... 8,380 E. Hoskins ... 8,470
Dove Bros. ... 7,955 F. T. Chinchin ... 7,747
* Accepted.

LONDON.—For rebuilding the girls' offices, adapting the existing offices for new urinal, improving the lavatories, and providing part new drainage scheme for old school, at the Creek-road Schools, for the London School Board. Mr. T. J. Bailey, architect.

S. Mason, Ltd. ... £1,703 5 1 G. Parker ... £1,039
J. Garrett & Son ... 1,400 0 E. Triggs and Co. ... 1,017
F. G. Minter ... 1,116 0 E. Triggs* ... 935
W. V. Goad ... 1,697 0
* Accepted.

LONDON.—For refitting girls' offices, constructing infants' urinal, altering boys' urinal, and refitting offices, and providing part new drainage scheme, at the Gloucester-grove East Schools, for the London School Board. Mr. T. J. Bailey, architect.

S. Mason, Ltd. ... £1,836 4 2 Lathey Bros. ... £1,301
F. G. Minter ... 1,395 0 0 E. Triggs ... 1,285
Stimpson & Son ... 1,390 0 0 Cowley and Drake* ... 1,257
* Accepted.

LONDON.—For enlargement and improvements. The revised accommodation of the whole school on the completion of the enlargement and improvements now proposed will be for boys, 448; girls, 448; infants, 508; total, 1,404, at the Marlborough-street School, Blackfriars, for the London School Board. Mr. T. J. Bailey, architect.

T. and H. F. Higgs ... £19,118 ... £283
B. E. Nightingale ... 18,923 ... 270
Kilby and Gayford ... 18,787 ... 220
E. Lawrence and Sons ... 18,387 ... 245
W. Smith ... 18,126 ... 264
Lathey Bros. ... 17,884 ... 261
Leslie and Co., Limited ... 17,033 ... 18

LONDON.—For erecting offices for boys, adapting boys' old offices for girls, and providing part new drainage scheme at the "Whittington" School, for the London School Board. Mr. T. J. Bailey, architect.

Samuel Mason, Ltd. ... £1,396 17 5 Stevens Bros. ... £1,227 0 0
J. Willmott & Sons ... 1,490 0 0 G. S. Williams and Son ... 1,200 0 0
R. A. Yerbury and Sons ... 1,350 0 0 Drake* ... 1,140 0 0
E. Lawrence & Sons ... 1,235 0 5
* Recommended for acceptance.

LONDON.—For improvements, &c., at the Stephen-street schools, for the London School Board. The revised accommodation consequent upon the proposed improvements will be: Boys, 330; girls, 334; infants, 400; total, 1,064 (involving a reduction of 79 places over the old school, viz.: Boys, 34; girls, 41; infants, 4). Mr. T. J. Bailey, architect.

W. Scrivener and Co. ... £16,466 ... £165
G. S. Williams and Son ... 16,330 ... 160
D. Charteris ... 16,308 ... 159
E. Lawrence and Sons ... 15,223 ... 150
Treasure and Son ... 15,267 ... 143
J. Chessum and Sons ... 14,462 ... 170
J. Simpson and Son ... 13,398 ... 145
R. A. Yerbury and Sons ... 13,455 ... 143
Leslie and Co., Ltd.* ... 13,224 ... 100
* Recommended for acceptance.

LONDON.—For erecting manual training centre for forty boys and enclosing, draining, and tar-paving the additional land at Northey-street Schools, for the London School Board. Mr. T. J. Bailey, architect.

Staines and Son ... £1,420 0 0 ... £230 0
J. Willmott and Sons ... 1,316 8 8 ... 30 0
W. Sturmar ... 1,221 0 0 ... 26 0
Johnson and Co. ... 1,213 16 0 ... 28 16
J. Grover and Son ... 1,194 0 0 ... 28 0
W. MacCormick and Sons ... 1,158 0 0 ... 27 0
F. and F. J. Wood ... 1,080 0 0 ... 33 0
J. T. Robey ... 1,084 17 0 ... 26 16

LONDON.—For the erection of four semi-detached houses, to be erected in Wiverton-road, Sydenham, for Mr. Harry Francis. Messrs. Douglas Young and Co., architects, 51, Coleman-street, City.

James Smith and Sons ... £2,600 E. J. Taylor ... £1,970
W. V. Goad ... 2,600 Newmans, Limited ... 4,968
T. R. Roberts and Co. 2,566 G. J. Kick* ... 1,878
* Accepted at £1,840.

LONDON.—For the erection of shop premises at Ladywell-road, Lewisham, for Messrs. Longstaff and Co. Mr. Alfred Roberts, architect, 18, Nelson-street, Greenwich, S.E.

R. Eke ... £1,700 R. Soper ... £1,325
A. Marsh ... 1,620 Jones and Groves ... 1,264
Kennard ... 1,600 Gerrard & Sons, Lewis-
W. Mills ... 1,449 ham (accepted). ... 1,225

LONDON.—Accepted for the erection of a new vestry, with furnace-room under, at St. John's Church, Putney. Messrs. Lee and Pain, architects, 63, Lincoln's-inn-fields, W.C.

Adamson and Sons ... £90
LONDON.—For the erection of new billiard saloon and sundry alterations to "The Northumberland Arms," Northumberland Park, Tottenham, N. Mr. J. W. Brooker, architect, 13, Railway-approach, London Bridge, for Mr. Harvey-Burman.

£2,370 Edwards and Medway £2,437
£2,340 Hibberd Bros., Ltd.* ... 2,015
* Accepted.

LONDON.—For the erection of new billiard saloon, and sundry alterations to "The Royal Albert" tavern, St. Stephen's-terrace, South Lambeth. Mr. J. W. Brooker, architect, Railway-approach, London Bridge, for Mrs. Butlin.

Edwards and Medway ... £1,393 Hibberd Bros., Ltd.* ... £1,350
Maxwell Bros. ... 1,360 Burman ... 1,335
* Accepted.

LONDON.—For the reconstruction of a pavilion and for the reconstruction of the system of drainage at the South Western Hospital, Stockwell, for the Metropolitan Asylums Board. Mr. T. W. Aldwinckle, architect. Quantities by Mr. W. T. Farthing.

Kirk and Randall ... £17,723 H. Wall and Co. ... £15,554
F. and H. F. Higgs ... 16,215 W. Johnson and Co., Ltd.* ... 15,330
E. P. Bullard and Co. ... 16,135
T. Adams ... 15,870 J. Hayward ... 15,280
* Accepted.

LONDON.—For the erection of a laundry at the infirmary, St. John's Hill, West Wansborough, for the Guardians of the Poor of the Wandsworth and Clapham Union. Mr. T. W. Aldwinckle, architect. Quantities by Mr. W. G. Edwards.

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E. Lawrence and Sons ... 18,387 ... 245
W. Smith ... 18,126 ... 264
Lathey Bros. ... 17,884 ... 261
Leslie and Co., Limited ... 17,033 ... 18

LONDON.—For rebuilding the girls' offices, refitting the boys' offices, and providing part new drainage scheme at Bowling Green-lane Schools, for the London School Board. Mr. T. J. Bailey, architect.

J. Grover and Son ... £1,400 Stevens Bros. ... £1,262
F. Lawrence and Sons ... 1,410 E. Triggs ... 1,241
Wm. Downs ... 1,283 G. S. Williams & Son ... 1,231

MARKET HARBOUROUGH.—For erecting butcher's shop and Co-operative Hall, Coventry-street, for the Market Harborough Industrial Co-operative Society, Limited. Messrs. Coates and Johnson, architects, Corn Exchange, Market Harborough.

W. Henson ... £1,460 0 0 Extra for tiled dado. ... £15 0
W. Pettifer ... 1,399 0 0 ... 32 0
H. Martin ... 1,390 0 0 ... 39 0
J. Hafford ... 1,369 0 0 ... 33 18
G. L. Martin ... 1,318 0 0 ... 36 0
G. Jarman ... 1,313 1 3 ... 35 14
T. Hickman, Har-
borough* ... 1,278 0 3 ... 35 15
* Accepted.

RADLETT (Herts).—For the erection of village hall, for the Committee. Mr. A. G. Bond, architect, 51, Corn-street, Bristol. Quantities by Mr. W. L. Bernard.

J. G. Cowell ... £1,250 0 0 Geo. Wiggs ... £1,060 0 0
Clifford & Gough ... 1,240 0 0 C. W. Reed ... 1,040 0 0
Gough and Co. ... 1,239 0 0 Bunell Bros. ... 1,030 0 0
G. H. Taylor ... 1,211 10 6 Whitehouse and
J. P. White ... 1,173 0 0 Verdon, 247, Bat-
J. Darvall ... 1,150 0 0 tarsea Park-rd.
T. F. Bros. ... 1,097 0 0 London, S.W.* ... 82 12 7
W. B. Neal ... 1,090 0 0
* Accepted, subject to modification.

WESTON-SUPER-MARE.—For erecting two pairs of cottages, Uphill Drive-road, Weston-super-mare, for Mr. E. M. Whiting, Mr. S. J. Wilde, architect, Boulevard Chambers, Weston-super-mare.

J. Solway ... £1,310 W. M. Dubin ... £1,164
Keen and Keen ... 1,590 E. and C. Stradling ... 1,100
R. Wilkins and Son ... 1,450 Antice-terrace, Wes-
G. Sprake ... 1,440 ton-super-mare* ... 1,100
J. Wilcox ... 1,310
* Accepted.

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Securities will be required. The lowest tender or any will not necessarily be accepted.
Tenders, addressed to the undersigned, sealed, and endorsed "Tender for —," naming the article, will be received at this office up to WEDNESDAY, the 8th day of DECEMBER, 1897.
Forms of proposal may be had at the office between the hours of Eleven and One o'clock.
By order,
N. PROUD, Secretary.

Port and Docks Office, Dublin,
November 13th, 1897.

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Surveying and Sanitary SUPPLEMENT.

NOVEMBER 24TH, 1897.

SEA DEFENCES.*

By RICHARD F. GRANTHAM,
M.Inst.C.E., F.G.S.

IN view of the rapid extension of seaside watering-places, and the large sums of money spent on their protection from the sea, as well as of the importance to owners of land and houses by the sea, of the protection of their property, the principles upon which such works should be constructed appear to the author to be worthy of the fullest consideration of engineers, and particularly when one remembers the diversity of opinion as to the forms which they should take. That the conditions of any one part of the coast differ from those of any other is not a sufficient explanation of the variety of forms of defence which are to be found along the sea frontage.

More than fifty years ago, at the reading of papers before the Institution of Civil Engineers, upon the question of the best form of sea walls, opinion was divided on the respective merits of upright walls, and of long stone pitched slopes following the natural inclination of the shore. The late Mr. John Scott Russell expressed the opinion that, for the purpose of reflecting waves and not breaking them, "with the best materials, best foundation, the most perfect workmanship and constant care, there is no doubt that the shape in which the smallest quantity of material will most completely resist the action of the sea is the vertical wall," and he goes on to explain that an angle of 45deg. for the outer slope of the wall would bring it within the scope of his definition of a vertical wall, and would give "the advantage that it combines in the highest degree the action of weight of each of the stones with their pressure on each other."

The form of wall more recently constructed at various points on the coast coincides with this view, although, perhaps, its suitability as a support to an esplanade may have to some extent determined it.

* A paper read before the Society of Engineers.

The rate of loss ascertained by the author at various points on the coast is as follows:—

	Feet per annum.	
Between Westgate and Margate, chalk cliffs, 30ft. to 40ft. high above sea level	2	0
St. Margaret's Bay, near Dover, loam and gravel, about 5ft. to 6ft. above sea level	4	6
New Romney Level, sandhills varying in height	8	0
Lancing Village, Sussex, ridge of shingle protecting low-lying land swept back by the sea. Average about	18	0

Other observers have found the rate of erosion to be:—

	Feet per annum.
Easton Bavent Cliff, north of Southwold, light coloured sands, laminated clay, and shelly sands 11ft. high	21 to 30
Between Eastbourne and Langley Point, rubble clay gravel	3
Between Hengistbury Head and Boscombe Chine, east of Bournemouth, light coloured sands and dark clay from 30ft. to 77ft. high	10
Yaverland and Redcliff, Isle of Wight, about	3

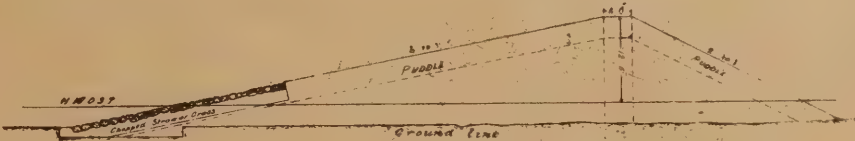


FIG. 1. ESTUARY OF THE NENE.

Elmer, Middleton, Sussex, part ridge of shingle, part loamy clay cliff, about 6ft. above sea level	3	0
Bracklesham to East Wittering, west of Selsea Bill, loamy clay with some gravel	5 to 8	
East Wittering to mouth of Chichester Harbour, loamy clay and gravel, from 10ft. to 20ft. above sea level	10 to 15	
Highcliff, east of Christchurch, Hants, slipping cliff about 100ft. above sea level. Sharp gravel and sand, 13ft. to 18ft. thick, overlying Barton clay	3	0

Mr. Robert Pickwell stated that the average rate of loss of land between Flamborough Head and Spurn Point must considerably exceed 2½ yards per annum.

Lyme Regis, Lower, lias clay on limestone	3	
Bridport Harbour, East Cliff, sands and calcareous sandstone	1	
Bridport, West Cliff, clays and marls Westward Ho, for about a mile in length, about	1 to 3	
Watchet, cliff, about 56ft. high, red and grey marls (Rhoetic)	30	
	4	

This loss produces littoral drift, the subject of a recent paper by Mr. W. H. Wheeler, M.Inst.C.E. The author, however, from his experience, shares the opinion expressed by other engineers, that the movement of this drift is due to the waves created by the prevailing wind of the locality, and not to the wave action of the flood tide, although in most cases its direction coincides with that of the flood tide.

Fig 2



FRONT WALL, CANVEY ISLAND.

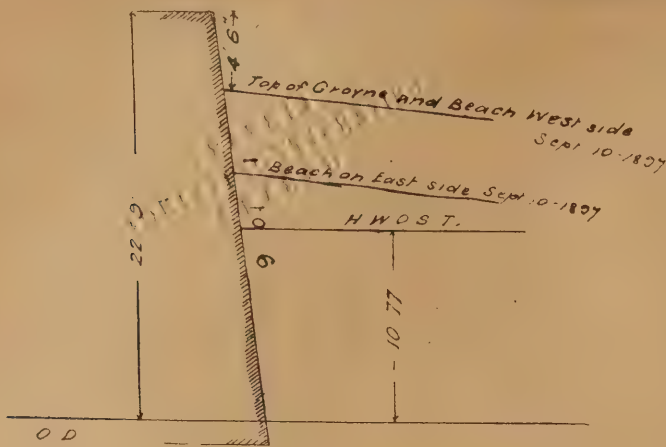


FIG. 5. HOVE SEA WALL.

Now, the sand and shingle thus transported are the most important elements in the protection of the coast. In ordinary times, they in some degree prevent the constant fretting away of the foot of the exposed cliffs, or, when piled up in a ridge on low-lying land, check the advance of the sea. Clearly, then, the removal of this sand and shingle in large quantities weakens the natural defence of the coast line, and ought in all cases to be stopped. Thus, the author found that west of Selsea Bill, shingle was being taken for repairing the parish roads, and that barges were removing 100 tons of shingle per week from the Spit at the mouth of Chichester Harbour. By the advice of the author, the Lords of the Manor prohibited the practice. A similar custom prevailed on the Yorkshire coast, and the trade in shingle was largely developed by the opening of the Hull and Holderness railway. The Board of Trade put a stop to it, the late Sir John Coode's evidence being that "if the shingle continued to be removed the port of Hull would be endangered, and that materially so."

The artificial defences against the sea are:—

- I. The embankments which protect the low-lying and reclaimed lands, generally of earth with pitched slopes.
- II. Upright stone or concrete walls, some of which have groynes in front of them.
- III. Groynes of timber, stone, or concrete.

I. **Embankments.**—The most familiar forms of these (see Fig. 1) have, where exposed, a front slope of 4 and 5 to 1, a back slope of $1\frac{1}{2}$ and 2 to 1, and a height of from 6 to 16ft. above high water spring tides. The front slopes are sometimes pitched with chalk or stone, or, as in Holland, are protected by fagotting. The walls of the Canvey Island in the estuary of the Thames, 4 miles west of Southend, have for some years been under the charge of the author, and are typical of this kind of defence. In 1881 the sea broke into the island—its surface being about 2 and 3ft. below H.W.O.S.T.—and flooded about 1500 acres. The top level of the walls, which are 16 miles in length, at that time was about 15ft. above Ordnance Datum, and the width 3ft. The outer slope of the wall, which is 4 miles long, fronting the Thames, is faced with Kentish ragstone pitching, about 40ft. wide in the most exposed parts (Fig. 2). The author first raised the front walls to a height of 18ft. above O.D., and the back walls to 16ft. O.D., the highest known tide being 15ft. O.D. The stone pitching of the front walls was broken up and spread as a layer 12in. thick, and upon this dry stone pitching, averaging 15in. thick, was laid.

It is not known when the island was reclaimed, but the history of the maintenance of the walls commences about the year 1620, A.D. It is not likely that the stone-pitching of the front slope was undertaken all at once. The probability is that the front wall was first formed, as is usually the case, a little distance from the margin of the saltings, the edge of which is generally broken and fretted away

by the action of the waves, a mud-covered slope being left in front. As this broken edge approached the foot of the front slope it was probably sloped back and pitched with stone with a row of oak stakes driven in at the foot. Waves rolling up and down this slope would immediately begin to scour out the mud at the foot and undermine it; the pitching would then be added downwards with another row of oak stakes at the foot. This process would be continued until the foot of the slope had reached its present level of about 8ft. below H.W.O.S.T.,

or 8ft. above L.W.S.T. The slopes now have inclinations of from $3\frac{3}{4}$ to 1 to $4\frac{1}{2}$ to 1. But in order to prevent further scour, low stone-pitched groynes were run out at right angles to the front line, and these groynes at the present time cause some small accumulation of drift, sufficient to prevent further undermining.

The well-known Dymchurch wall from its exposed situation, is an exception in its form to the class of sea defences now under consideration. It was formed at a time when the discussion already referred to, on long slopes and upright walls, was proceeding. The inclination of the sea slope was 6 to 1, 7 to 1, and 8 to 1, terminating at the upper end with a curve of 7ft. radius in an upright wall, the top of which is about 10ft. above the H.W.O.S.T. The breadth of the stone-pitching when first laid was about 130ft., the lower end being about 7ft. above L.W.S.T., or 14ft. below H.W.O.S.T. Further reference to the present state of the wall will be made under the head of groynes.

There are, so far as the author is aware, few earth embankments of reclamation areas faced with upright sea walls of any great length. Recently, however, he had to inspect and report upon the defences of the Caldicot Level, which is under the jurisdiction of the Monmouthshire Commissioners of Sewers, at the mouth of the Severn. The defences fronting the river, which is there about five miles wide, consist of the usual earth embankment faced for a continuous length of six miles with stone walls more or less upright. Owing to the circumstances in which they have been built these walls present almost every variety of profile, from a slope of 2 to 1 to the perpendicular and curved. The section varies every 200 yards, and sometimes less; some walls are from 2ft. to 3ft. higher than those adjoining them, the general height being from 12ft. to 14ft. above the shore level. The rise of spring tides is 38ft., and high-water mark is within about 3ft. of the top of the lower walls. In storms, however, the surge of the waves frequently overflows. The base of the wall is bedded on the rock of the foreshore, but although it resists scour to some extent, it has been found necessary to form a broad apron of dry pitched stone in front of the foot of the

wall to prevent undermining. The walls were much damaged by the storm of October, 1896, and again in March, 1897.

II. **Upright Walls.**—The prevailing practice at watering places in recent years, where a coast is exposed directly to the sea, has been, as already observed, to build walls more or less upright. But there is no uniformity in the profile of the face. At one place it is nearly perpendicular, at another it has a batter of one or two inches to the foot or more; sometimes it is curved more or less; and occasionally it is built up in steps. But while the form may be such as to aggravate mischief at the foundation, damage to, or the destruction of a sea wall, is not generally directly due to its form or to the want of thickness or inherent strength of the wall, but to undermining.

As soon as a wall is built on a coast exposed to heavy seas, the sea at once begins to scour out, first the drift lying upon the shore, and then the material of which the shore consists. With a perpendicular or slightly inclined face, the waves during the storms, suddenly checked in their advance, shoot up it, or over the top, volumes of water, which falling back draw with them as they recede, the sand and shingle at its foot, which are then by the following waves carried away to leeward. On a more inclined slope of 1 to 1 or 2 to 1 (see Fig. 3) the waves running up and receding scour away the materials at the top of the slope. Where there is a sharply curved face, especially when a nosing is added or the coping projects, the wave rises up and is thrown violently back on the shore at the foot of the wall. The result in each case is a general lowering of the level of the shore so that deeper water is brought up to the wall. Unless it is founded on hard rock, or protected by groynes, its foundation will be undermined, and its destruction is only a question of time.

The author's firm built a sea wall at Westgate, Kent (see Fig. 4), where the shore and cliffs are of chalk. The chalk on the shore appeared hard, and was covered with seaweed. The base of the wall was built 2ft. deep below the shore level. But in two or three years it was found that for some yards in length the foot of the wall had been undermined, and the chalk scoured out about 6in. The remaining lengths of the foundations were built 4ft. below the shore level.

Mr. Ellice-Clark mentions the case of a wall he built at Ramsgate, where the curve of the face was made too sharp, with the result that the chalk foreshore was speedily undermined. At Blackpool the cliff on the frontage was sloped down to an angle of about 50 degs. and paved with stone. Scour caused by the run of the waves up and down the slope immediately commenced, and the stonework was undermined. The foundation was carried lower down, thereby increasing the scour, and the stonework had to be carried still lower down. The result was a permanent lowering of the shore, and an increased depth of water, giving greater power to the waves.

At Brighton and at Hastings, in order to protect the front walls, the corporations have found it necessary to build large and costly concrete groynes. At Hove, too, the fine esplanade wall (see Fig. 5), built by the late Sir John Coode and Mr. Ellice-Clark, is protected by short timber groynes, without which the wall probably would not now be standing. But from the scarcity of the supply of shingle

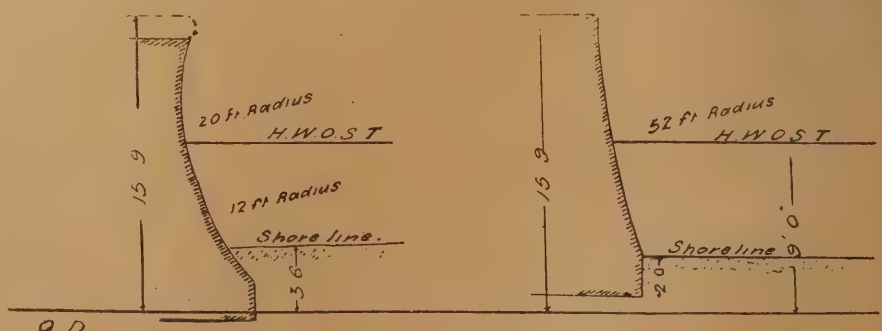


FIG. 4. WESTGATE.

travelling along the frontage—the bulk of it having been trapped at Shoreham Harbour, and by various groynes to the westward—difficulty was experienced in keeping the bays formed by the groynes sufficiently filled.

The damage to and occasional destruction of parts of the Seabrook wall between Hythe and Sandgate arise from the same cause—the liability of the stratum in which it is bedded to scour—and the short timber groynes subsequently added have not altogether remedied the mischief.

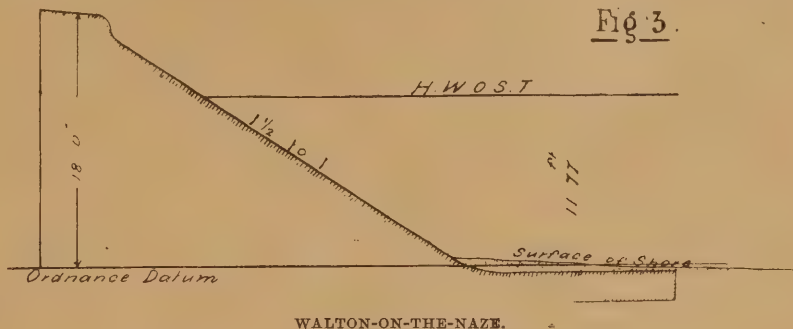
(To be continued.)

THE new system of “septic” treatment at Exeter is described by Mr. Cameron, the city surveyor, in a paper read before the Devon and Exeter Architectural Society. It is claimed for this system that the sewage treated by this process in the tanks is brought under the influence of micro-organisms; the decomposition of the matters which would otherwise undergo putrefaction being effected by the presence of these micro-organisms, their products being ammonia and carbonic acid with some other gases. The bottom of the tanks after six months’ use, when exposed, showed only a thin layer of black earthy matter, together with mud and grit. The effluent is not offensive, and it is stated that it does not ferment. At Wolverhampton recent experiments have shown that filtering the sewage through coal-dust is an effectual way of purifying it, and that a very satisfactory effluent can be obtained by passing 200 gallons of sewage through one square yard of filtering material in 24 hours.

Not a few provincial sanitary inspectors and medical officers of health, are, says the Globe, much given to the practice of shutting the stable door after the steed has been lost. When an outbreak of some terrible epidemic occurs they are as alert and energetic as need be, but in too many cases the grossest and most palpable insanitation is ignored until then. There would be very little difficulty in citing a number of instances precisely similar to one mentioned in the last report of the Erdington Health Committee. Four deaths from diphtheria having occurred at a cottage, official inspection was at once ordered. Here is the description of the premises: “Cellar wet, spouting deficient, sink drain defective, water polluted; pigs in a filthy state, kept in out-houses against the cottage; unpaved yard occupied by a large number of fowls.” In this vile place a large family lived, without caring for the ever-present danger of death, until four of them were swept away. But, surely, with such a multitude of well-paid officials entrusted with the conservation of public health, it ought to be someone’s duty to ferret out such veritable “homes of diphtheria,” as the medical officer of health styled them.

Surveying and Sanitary Notes.

FOR some time past the contractor for the sewerage works of the East Stow Rural District Council (Mr. F. Plummer, of Rattlesden), has met with considerable difficulty in carrying the pipes of the East Stow Sewerage Disposal Works across a piece of boggy meadow land at the back of the Stowmarket Gas Works, and adjoining the Great Eastern Railway. It was proposed to erect a pumping station at this spot to carry the sewage up to the Sewage Farm, but no sooner had the foundations been dug, and the walls of the building commenced, than it was found that the water came in with great rapidity, and it became necessary to employ an engine to pump the water into the river. With great difficulty the trenches were dug, and the sections of



pipe, each weighing some 30cwt., got into position, these having to be supported on wood staging to keep them at a proper level in the bog. A strata of shifting sand was struck while the work was in progress, and in spite of strenuous efforts on the part of the contractor, the obstacle has proved too much for him; the foundation of the pumping station gave way, and the sides fell in the water, at once rising to the level of the meadow, so that trenches had to be cut, and the water and sewage matter now finds its way through an open ditch into the river. It was finally decided to suspend operations, and the engineers (Messrs. Tayler, Son, and Santo Crimp), are to decide as to the future position of the pumping station.

MR. W. H. CASMEY, in a lecture before the members of the Yorkshire College Engineering Society on “Warming and Ventilation,” said that wherever a number of people were

gathered together in a building there should be a constant flow of fresh air, in the proportion of 3700 cubic feet for each person, and it was only by such a quantity being supplied that normal death rates could be obtained. There was reason to believe that the time would come when every building throughout the kingdom would have a mechanical method of warming and ventilation. A consideration of the facts on record led him to form the opinion that the contagiousness and the non-contagiousness of pulmonary consumption varied in direct ratio to the amount of air space and of free ventilation of air in the dwellings of the people. Previous to the Army Sanitary Commission, nearly forty years ago, the cubic space per soldier in the barracks of the Foot Guards was 331 cubic feet, and the mortality from lung disease was nearly fourteen per 1000. In the Horse Guards, on the other hand, with now space per man equal to 572 cubic feet, the death rate was seven per 1000 from the same disease. The air space

Fig. 3.

had been increased to 600 cubic feet per man, and the death rate from lung disease was three per 1000. In ventilating a building care must be taken that the air introduced was properly warmed. It was impossible to either study or work to the best advantage in a low temperature, the reason being that the corporeal heat or energy, instead of being devoted to its work, was taken away by the cold. Schools, mills, and works should be properly warmed before the scholars or workpeople were allowed to enter them. If this were done a very short time would prove that the step taken was a right one. Mr. Casmey proceeded to describe the installation recently applied by the Blackman Ventilating Company to the Royal Technical Institute at Peel Park, Salford. The building contained about 1,000,000 cubic feet of air space, and the plant applied was of sufficient capacity to supply 4,000,000 cubic feet of air per hour, which was equal to supplying over 1000 students with 3700 cubic feet.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Nov. 27	Bridlington Quay—Lavatories...	Urban District Council	Surveyor, Offices, Bridlington Quay.
27	Colchester—Nurses' Home, &c.	Hospital Committee	Goodey and Crossall, Victoria-chambers, Colchester.
27	Hopetown, Normanton—Pewing Chapel		J. Land, Alpine Villas, Castleford rd., Hopetown, Normanton
27	Whickham, Durham—Eight Cottages		R. Rutherford, Whickham.
29	Deal—Underground Convenience	Corporation	T. C. Golder, 16, High-street, Deal.
29	Bristol—Pupil Teachers' Centre	School Board	La Trobe and Weston, 20, Clare-street, Bristol.
30	Chatham—Post-Office	Postmaster General	Postmaster of Chatham.
30	Forfar, Scotland—Post-Office	H.M. Commissioners of Works	H.M. Office of Works, Edinburgh.
30	Goole—Repairs to Schools	School Board	H. Lindley, Clerk, Goole.
Dec. 2	Enfield Lock—Alterations to School	School Board	G. E. T. Laurence, 181, Queen Victoria-street, London, E.C.
4	Aberystwith—Church Chancel, &c.	Joint Hospital Board	Rev. P. Williams, Abergeldie House, Aberystwith.
4	Pontefract—Hospital Buildings	United Gaslight Co.	Termant and Bagley, Architects, Pontefract.
4	Sheffield—Concrete Retaining Wall, &c.	Sheffield & Midland Railway Company	F. W. Stevenson, Offices, Commercial-street, Sheffield.
6	Reddish—Warehouse, &c.	School Board	Engineer, Gt. Central Railway, London-road, Manchester.
6	Rodborough, near Stroud—School	School Board	E. C. Gough, 5, John-street, Aldelphi, London, W.C.
6	Rowley Regis—Additions to School	Urban District Council	J. T. Meredith, Architect, Kidderminster.
6	Llandudno—Municipal Buildings	Urban District Council	Silcock and Reay, Octagon-chambers, Milson-street, Bath.
7	Woking—Public Offices	Urban District Council	G. J. Woolridge, Bank-chambers, Woking.
8	Winchmore Hill, N.—Nurses' Home and Isolation Pavilion at Hospital.	Metropolitan Asylums Board	Pennington and Son, Hastings House, Norfolk-street, W.C.
9	Kilkenny—Forty Houses, &c.	Corporation	W. R. Cleere, Executive Sanitary Officer, Kilkenny.
9	Halifax—Police Station, &c.	Corporation	G. Buckley and Son, Architects, Tower-chambers, Halifax.
9	Newquay—Erection of Villa	W. R. Northway	Murray and Bowling, Solicitors, Newquay.
26	Buenos Ayres—Central Railway Station		Legation of Argentine Republic, London.
1898.			
Jan. 1	Copenhagen—Repairing Cemented Museum Walls	Corporation	F. Meldahl, Offices, Copenhagen.
No date.	Ashton-under-Lyne—New Offices	Co-operative Society	T. D. Lindley, Architect, Ashton-under-Lyne.
"	Belfast—Six Houses, &c.		W. Campbell, 4, Hurst-street, Belfast.
"	Bingham, Notts.—Workhouse Waiting-rooms, &c.	Guardians	A. B. Calvert, Architect, Nottingham.
"	Bury, Lancs.—Houses, &c.		J. Sellars and Son, Union-chambers, Bury.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Colchester—Houses, &c.		C. E. Butcher, 3, Queen-street, Colchester.
"	Colmonell, Ayrshire—Church...		A. Petrie, 134, Wellington-street, Glasgow.
"	Consett, Durham—Fifteen Houses		Bloom's, 9, High West-street, Sunderland.
"	Dudley—Billiard-room	Working Men's Club	A. Gammage, Imperial-buildings, High-street, Dudley.
"	Fleetwood, Lancs.—Shop and Dwelling-house		D. Rankin, Church-street, Fleetwood.
"	Hunslet, Leeds—Drywall		W. Broughton, builder, Jesmond-terrace, Lowtown, Pudsey.
"	Keighley—Erection of Houses	R. Feather	Peterson and Lawson, 1, Bank-street, Bradford.
"	Leeds—Alterations to Two Shops		59, Kirkstall-road, Leeds.
"	Mallaig, Scotland—Business Premises		D. Cameron, Architect, Inverness.
"	Redruth—School Alterations	School Board	S. Hills, Architect, Redruth.
"	Rumney, Cardiff—Villa Residence		S. Rooney, 9, Quay-street, Cardiff.
"	Saltaire, Yorks.—Semi-detached Villas		Peterson and Lawson, 1, Bank-street, Bradford.
"	Scarborough—Fourteen Houses		A. Moore, 23, West-bank, Scarborough.
"	St. Albans—General Repairs	Salvation Army	T. F. Woodman, St. Peter's-street, St. Albans.
"	Yatton—House Alterations, &c.		A. C. Rowley, 26, Nicholas-street, Bristol.
"	Horncastle, Lincs—Memorial...	Stanhope Memorial Committee	S. G. Overton, 2, Manor-house-street, Horncastle, Lincs.
"	Bodmin—Erection of Isolation Hospital	County Asylum Visiting Committee	R. P. Edyvean, Clerk, Bodmin.
"	Crosby, near Liverpool—Erection of Church		Grayson and Ould, 31, James-street, Liverpool.
"	Hackenthorpe, Yorks.—Church		J. D. Webster, 19, St. James's-street, Sheffield.
1897.			
ENGINEERING—			
Nov. 27	Long Framlington—Laying Water Pipes	Corporation Tramways Co.	W. J. Robinson, New Moor Hall, Long Framlington.
" 27	Blackburn—Electric Trams	Guardians	E. M. Lacey, 10, Delahay-street, Westminster.
" 27	Downpatrick—Reservoir Filters, &c.	Rural District Council	P. C. Cowan, County Surveyor, Downpatrick.
" 29	Rothbury—Water Supply Extension	Tynemouth Gas Company	Granby Inn, Long Framlington.
" 29	North Shields—Coke Elevator	Urban District Council	W. Hurdur, jun., Engineer, Gasworks, North Shields.
" 29	Nuneaton—Service Reservoir...	Urban District Council	J. S. Pickering, Waterworks Engineer, Nuneaton.
" 30	Edinburgh—Drainage Works	Midlothian County Council	Belfrage and Carfrae, 1, Erskine-place, Edinburgh.
" 30	Ilkley—Sewage Works Extension	Urban District Council	J. Waugh, C.E., Sunbridge-chambers, Bradford.
" 30	Llandudno—Water Main	Urban District Council	E. P. Stephenson, County Offices, Llandudno.
Dec. 1	Llanelli—Construction of Dock	Navigation Commissioners	H. W. Spowart, Clerk, Town Hall, Llanelli.
" 1	London, E.C.—Locomotive Boilers	East Indian Railway Company	Offices, Nicholas-lane, London, E.C.
" 2	Cardiff—Service Reservoir, &c.	Corporation	C. H. Priestley, Engineer, Town Hall, Cardiff.
" 2	Sheffield—Gas Lighting	Wales (near Sheffield) Parish Council	Clerk, Kiveton Park, near Sheffield.
" 4	Sheffield—Retort Mouthpieces	United Gaslight Co.	F. W. Stevenson, Commercial-street, Sheffield.
" 4	Sheffield—Retort Fittings	United Gaslight Co.	F. W. Stevenson, Commercial-street, Sheffield.
" 6	Southampton—Pontoon, &c. (Two Contracts)	Harbour Board	E. C. Poole, 4, Portland-street, Southampton.
" 7	Craiova—Waterworks	Town Council	The Mayor, Craiova, Roumania.
" 8	Wellington, Somerset—Steam Roller	Rural District Council	W. S. Price, Clerk, Wellington, Somerset.
" 14	Bruges, Belgium—Harbour Works	Gas Company, Ltd.	Provisional Government, Bruges.
" 27	Carrickfergus—Retort Bench, &c.	Council	R. Campbell, Manager, Carrickfergus.
" 31	St. Gilles-lez-Bruxelles—Gasworks	Government	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway		Central Directorate, Public Works, Porte Alegre.
1898.			
Feb. 28	Pernambuco—Port Works	Government	Brazilian Ministry of Public Works, Rio de Janeiro.
No date.	Collooney, Ireland—Watercourse, Turbine Pit, &c.	Creamery	A. A. Sim, Collooney.
"	Malling, Kent—Pump Well, &c.	Rural District Council	Prof. H. Robinson, 13, Victoria-street, Westminster.
"	Tavistock—Fixing, &c., Downspout	Harbour Commissioners	Matthews and Johnstone, Churchwardens, Tavistock.
"	Tralee—Steam Travelling Crane		Harbour Commissioners, Tralee.
"	Witnesham, Suffolk—Well Sinking		E. F. Gooding, Red House, Witnesham, Suffolk.
"	West Linton—Laying Water Pipes, &c.		R. Sanderson, West Linton.
FURNITURE AND FITTINGS—			
No date.	Liverpool—Supply of Furniture at Workhouse	Select Vestry	H. J. Hagger, Vestry Clerk, Brownlow-hill, Liverpool.
1897.			
IRON AND STEEL—			
Nov. 27	Dublin—Miscellaneous Stores (59 Contracts)	Great Northern Railway Co.	T. Morrison, Secretary, Amiens-street Terminus, Dublin.
" 29	Dublin—Various Stores (44 Contracts)	Great Southern & Western Railway Co.	Storekeeper, General Stores, Inchicore, Dublin.
" 29	Belfast—Various Stores	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
Dec. 1	Montgomery—Weathercock, &c.	Cheshire Lines Committee	J. Davies, Sexton, Church-bank, Montgomery.
" 3	Warrington—Stores (19 Contracts)	Harbour Trustees	S. S. Barton, Storekeeper, Cheshire Lines, Warrington.
" 4	Swansea—Iron Castings, &c.	Great Northern Railway Co.	Engineer, Swansea Harbour Office, Swansea.
" 4	London, N.—Supply of Stores, &c.	Midland, Great Western Railway Co.	— Martin, Stores Superintendent, Doncaster.
" 7	Dublin—Various Stores (32 Contracts)	Port and Dock Board	General Stores Department, Broadstone-station, Dublin.
" 8	Dublin—Chains, &c.	Steam Packet Company	N. Proud, Secretary, Port and Docks Office, Dublin.
" 9	Dublin—Boiler Tubes, Iron Castings, &c.	Urban District Council	Company's Office, 9, Regent-road, Liverpool.
" 13	Walton-on-Thames and Hersham—Cast-iron Pipes	Waterworks Committee	W. H. Radford, C.E., Angel-row, Nottingham.
" 29	Adelaide, South Australia—Steel Bars, &c.		Agent-General, Tender Board of Adelaide, London, E.C.
No date.	Manchester—Cast-iron Pipes, &c.		Secretary, Waterworks Offices, Town Hall, Manchester.
PAINTING AND PLUMBING—			
Nov. 29	Bristol—Plumbing Work	School Board	La Trobe and Weston, 20, Clare-street, Bristol.
" 29	Castlecomer, Ireland—Public Fountain	Guardians	J. Walker, Architect, Castlecomer, Ireland.
Dec. 2	Cardiff—Various (Five Contracts)	Corporation	C. H. Priestley, Waterworks Engineer, Town Hall, Cardiff.
No date.	Nottingham—Cleaning and Painting Schools	School Board	W. J. Abel, School Board Offices, Victoria-st., Nottingham.
ROADS—			
Nov. 29	Houghton Regis, near Dunstable—Broken Gravel	School Board	C. C. S. Benning, Dunstable.
" 29	Gore Farm, near Dartford, Kent—Road Repairs	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 29	Wimbledon—Road Works	Urban District Council	Surveyor's Office, The Broadway, Wimbledon.
" 30	Felling, Durham—Cartage	Urban District Council	G. Bolam, Clerk, Council Offices, Felling, R.S.O.
Dec. 1	Litherland—Completing Road	Urban District Council	W. B. Garton, Surveyor, Setton-road, Litherland, Lancs.
No date.	London, N.W.—Street Works		A. G. Spencer, 17, Coleman-street, London, E.C.
SANITARY—			
Nov. 27	Slough—Sewage Works	Urban District Council	W. W. Cooper, 1, Mackenzie-street, Slough, Bucks.
" 29	Dawlish—Sewers, &c.	Urban District Council	J. S. Delbridge, Surveyor, Priory-terrace, Dawlish.
" 29	Horsforth—Filters, &c.	Urban District Council	W. Spinks, Engineer, Prudential-bldgs., Park-row, Leeds.
" 29	Aughton, Lancs.—Sewerage Works	Rural District Council	C. S. Beeston, Albany-buildings, Ormskirk.
" 30	Ilkley—Sewage Works Extension	Urban District Council	F. Hall, Clerk, Ilkley.
" 30	Clayton, Yorks.—Sewage Disposal Works	Urban District Council	J. Waugh, C.E., Sunbridge-chambers, Bradford.
Dec. 1	Launceston—Sewerage and Sewage Disposal	Corporation	Town Clerk's Office, Launceston.
" 1	Aldershot—Main Surface Drains	Urban District Council	Lemon and Blizard, 9, Victoria-street, S.W.
" 4	Saltburn-by-Sea—Drainage Works	Urban District Council	R. A. Jackson, Surveyor, Milton-street, Saltburn-by-the-Sea.
" 6	Stockport—Sewerage Works (Two Contracts)	Rural District Council	H. H. Turner, Council's Surveyor, Workhouse, Stockport.
" 13	Walton-on-Thames and Hersham—Sewerage Works	Urban District Council	W. H. Radford, C.E., Angel-row, Nottingham.
TIMBER—			
Nov. 29	Belfast—Supply of Timber	Harbour Commissioners	G. F. Giles, Engineer, Harbour Office, Belfast.
Dec. 4	Swansea—Supply of Timber	Harbour Trustees	Engineer, Harbour Office, Swansea.
" 9	Dublin—Supply of Timber	Steam Packet Co.	Secretary, 15, Eden-quay, Dublin.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 16	Menai Bridge—Designs for Landing Pier	£40	Urban District Council.
No date.	Bury—Designs for beautifying Chapel		Trustees of Brunswick Chapel, North-street, Bury



An Architectural Causerie.

Wanted—Meat. There are many unquestionable signs of a revival of Architecture. A transitional period of doubt and vacillation has just been passed through, and now the germs of a very real and active life are visible, based on a solid undergrowth—the growth of applied design—which has been the wonder and the pride of the last decade. This is exactly as it should be, as it has been in all true Architecture of the past. It is the spirit in which the Gothic and the Renaissance were alike conceived. The craftsman first—the artist in stone, or wood, or jewellery—and then the architect, applying the principles which have proved successful in the smaller crafts to great monumental works, and always, if the development has been true, with absolute success. Ten years ago the crafts were only just awakening; now they are awake and living. In all small things design is beautiful and workmanship is true; and, more than this, the design is fresh in inspiration, free from copyism, almost free from tradition, founded on broad, general principles, and its ornamentation culled from Nature by a process of investigation the most minute and painstaking. Now, at the end of this decade of apprenticeship in smaller things, the same spirit is slowly but surely, and most hopefully, creeping into Architecture, the leaven of truth in design implanted originally by Morris and his co-workers reaching last of all the great constructive Art; and rightly last, as by its aid alone can the most permanent monuments of the aspirations of our generation be handed down to posterity, and such monuments were not possible till the principles were fully understood and the details mastered. Architecture is to-day much in the position occupied by the crafts ten years ago, with this exception, that it has its natural leaders in the carefully organised societies of London and the provinces. To these leaders the appeal goes forth for help and inspiration in the great work of revival. The cry is for meat—good, wholesome food for the mind and body, and even the spirit, architectural; in response, little save dry bones are provided, the bones of archaeology and construction. At the Institute, the Association, and the Society alike the discussions and the teaching are all of what is dead, not of that which tends to life; and naturally the provincial bodies in the main follow their metropolitan leaders. Certainly Mr. Rimington at one time tried to bring the study of true principles into prominence at the Society, but that is many years ago, and he suffered the fate of most of those who are before their time. He spoke to deaf ears then, while now he would be listened to with eagerness by the many who are seeking just such inspiration as he, an artist and not an architect, was eager to instil. Are there no others to continue this much-needed work now, and show that he but sowed seed in the autumn which was to bear leaf in the spring, and fruit and flowers in the summer? If the Institute will not give what is wanted, will the Association? and if not the Association, will the Society? Programmes are not yet full.

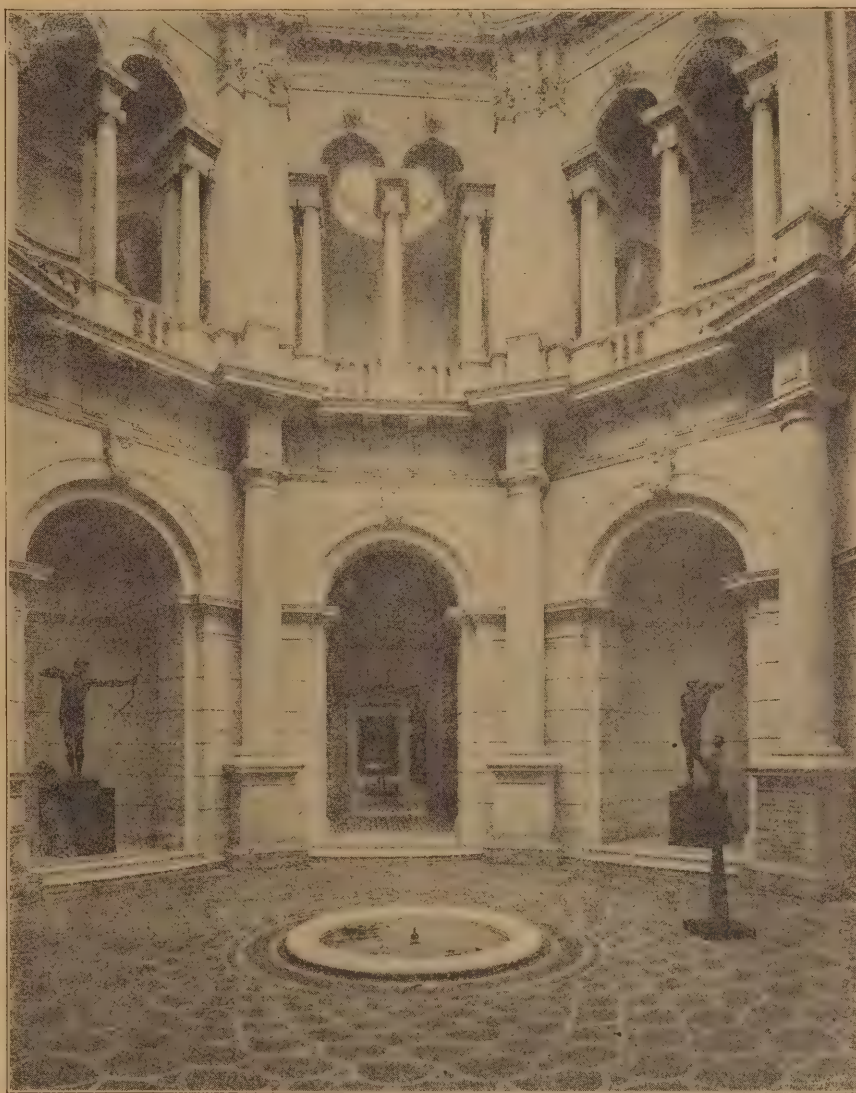
There is yet time to provide us during this coming session with something more helpful to the growth of Architecture than accounts of the causes which led to disastrous fires in foreign capitals, or to dissertations upon the second-rate Renaissance Architecture of a solitary island. True it is that true Architecture cannot be forced, that it must grow; but in order that it shall grow healthily it must have good food, and the cry is loud for meat.

G. A. T. M.

The Site of the New Chapel.

ONE day towards the end of August the "melancholy one" strayed across the common in the direction of the large pool. It was at the further side next the village of Coothampton. After some half-hour's walk along the path, skirted by chesnut trees and undergrowth, he caught a glimpse of the shining disc of water down the vista of foliage that met overhead in close embrace. Coming into the open, the "melancholy one" stood meditatively on the upper edge of the pool, watching the

by their owners, who shrieked and yelled like so many savages as they chased each other round the grass-circled water. The "melancholy one" turned away and passed on to the oak paling that fenced off the Roman Catholic Church. Just behind the palings was a narrow plantation of cone-bearing trees, the long trunks rising almost vertically above the fence, their branches spreading and bursting out into more generous masses of dark green leaves toward the tops. Enough of the church was seen through the plantation to suggest foundation, and give reality to the airy turret, which might, if fancy led, be some dainty handiwork of fairy craftsmen hung just above the surrounding tree tops. A little to the right of the fence were a number of labourers removing the turf and bushes, a few scaffold poles and ropes near at hand suggested the erection of a new building. To find whether this was so, "the mildewed one" made a move towards the men, but noticing a sign-board upon that side of the site furthest from him, thought it possible that the board would give the information desired. With hesi-



CENTRAL SCULPTURE HALL, THE NEW NATIONAL GALLERY OF BRITISH ART. SIDNEY R. J. SMITH, ARCHITECT

swallows as they darted to and fro, mirrored in the translucent grey of the miniature lake. The ground sloped away from where he was standing to the inner edge, which rose about a foot above the water line. Midway between the water and where the grassy slope joined the common were numerous little circles of clothing dotted about, thrown off carelessly

tating footsteps, that seemed undecided as to whether their owner should speak to the men or let the board speak to him, he drew nigh. In large white letters upon a black ground were the following words: "This is the site of the New Wesleyan Chapel. Subscriptions towards the building fund will be thankfully received by the Rev. T. Priarde, D.D."

Poor "mildewed and melancholy one"; here were words that heralded the destruction of his beautiful scene which hitherto the hands of man had enhanced, but now this signboard told another tale:—"A New Methodist Chapel." It was enough. Burying his head in his hands the inexperienced youth fled, scarce heeding how he covered the ground. He stumbled; and, alas, the yawning pool at hand received his troubled spirit, for there were no friendly savages at hand to help. About fourteen months later, when the evening mists were beginning to creep across the common, and the brown leaves were still falling, faintly tapping the branches as they swayed and fluttered to the ground, another signboard might have been noticed fixed against the new chapel wall, for the building was finished, and flaunted its characterless carcass near the plantation of trees. The new signboard gave out that "To-night there would be held a tea-meeting on behalf of the debt incurred in the building of our new chapel. Tickets sixpence each. Apply to the Rev. Priarde, D.D., pastor of this church." Lights begin to flicker behind the cathedral-tinted glass, and the sound as of cups and saucers rattling came through the open portals. Truly, as the unfortunate youth foresaw, this would have been no sight for such as he who claimed acquaintance with the gods. He chose the better part—died while young, and went where chapel builders cease from troubling and pastors are at rest. G. LL. M.

Misguided Philanthropists.

ANYONE who has lately crossed Waterloo Bridge will have noticed that the proprietors of a certain brand of wine have built themselves a warehouse, close to the bridge, with a river frontage, on which is displayed a gigantic illuminated reproduction of their label or trade mark. Over this is a semi-circle of electric lamps, which are alternately extinguished and re-lit. This is the last, but by no means the least of those electric street devices with which we are becoming familiar. They beautify Charing Cross, they lend an added charm to Piccadilly Circus, they enliven the junction of Oxford Street and Tottenham Court Road. To the man of imagination they recall memories of the "Thousand Nights Entertainment," of the geni of the magic lamp, of brilliantly lighted halls, of dark flashing eyes, and the tinkle of the feet of the dancers. But when we are abroad on the serious and practical business of life, we care for none of these things. To mingle pleasure and business is against all the principles of the commercial mind; so these well-meant efforts to brighten us up are only thrown away. They are not appreciated. The Italian musician, with his reminiscences of the sunny south, grinds to unwilling ears. If the citizen wants fairy lamps, he goes to Earl's Court; if he wants fireworks, to the Crystal Palace; so why not take these illuminations, and group them artistically at one of these popular pleasure resorts? Massed together, they would have a magnificent effect. They could be switched on and off, in sections or all together, to the tune of the brass band; the little lights could run up and down, and in and out, and round about, in quite a bewildering manner. It is inspiring to think of the effects that might be produced by a skilled operator—a real artist. At the close of the evening a grand set-piece might be arranged. In a framework, giving the names of the various drinks, condiments, and quackeries, that most do comfort our souls, might well be spelled out, in the largest of letters, this single, but most appropriate word, "Philistines!" The County Council had once a word of advice to offer to certain misguided

philanthropists, who wished to relieve the bald outlines of so many of our buildings by erecting "sky-signs." Perhaps it recommended them to give the money to the hospitals, or to pay for the L.C.C.'s municipal palace; anyhow they have ceased to spend it on "sky-signs," much to our content. Cannot the same authority venture on a little paternal advice in this case? It might possibly see in it such a chance to increase its popularity as does not often come in its way. Here are certain benevolent persons who are anxious to light the streets for us. Why not let them do it and abolish the lighting rates? The movement only wants proper direction. Why not work out a grand comprehensive scheme for the lighting of London by electric glow lamps: who so fitted to direct this as the L.C.C.? There might, however, be some little difficulty in inducing our benefactors to cease their individual efforts and combine in a general scheme. Such men are always of a sensitive conscience, and their scruples must be respected. To hide their candle under a bushel in flat defiance of the commandment, however great the practical advantages, is more than they can bring themselves to do. Perhaps we ought not to ask it of them. At a time like this, when humbugs of all descriptions abound in the land, it is as well that credit should sometimes go where credit is due. If "Gaslight" soap illuminates Charing Cross, why to "Gaslight" be all the glory. But would it not be possible, without appearing ungracious, to suggest to these public-spirited men that the result of their efforts have certain disadvantages; that these alternating illuminations sometimes worry the eye and jarr on the nerves of sensitive people. That a notice in different coloured lights that jumps from red to green and from green to red at intervals of about a second and a half, with an appalling monotony—just sufficient pause between each change to make you wait nervously for the next—has something of the same effect on the brain as the continual dropping of cold water on the head. This way madness lies. Nothing grieves a philanthropist more than to find that his unselfish devotion to the public welfare has been productive of more harm than good. Considering the strain of our city life, and how greatly nerve disorders are on the increase, is it wise to put an extra burden on already overwrought nerves in a Quixotic endeavour to improve the lighting of the streets, or to amuse us when we don't want amusement, especially when the same objects could be obtained without any of the present disadvantages? If these benevolent people would only consent to sink their sense of abstract justice and unite in a common effort for the public good, surely it would be accounted to them for righteousness. Charity covers a multitude of sins. How restful the effect of a simple line down the street compared with these conflicting and irritating spots of light; and if it is desired, as doubtless it is, to lighten our spiritual as well as our earthly footsteps, how much better than the present hieroglyphics—to which the mind can attach no moral—would be the high-toned sentiment which seems to have inspired this unselfish action, "Let your light so shine before men that they may see your good works"—a command which we are all of us just now rather too apt to forget. But should this be considered a counsel of perfection, which, by aiming too high, will miss the mark, why not the mingled wit and wisdom of this, one of those pithy, homely proverbs which have made us what we are: "Early to bed and early to rise, is no use unless you advertise?" The L.C.C., ere it hurries to the annihilation so benevolently predicted for it by Lord Salisbury—ere its own light flickers out—might try to bring about the same result in these flagrant instances of the abuse of advertising. A. R. J.

THE LONDON BUILDING ACT.

IMPORTANT AMENDMENTS.

THE London County Council has determined, upon the recommendation of its Building Act Committee, to apply to Parliament next session for some important amendments in the London Building Act, 1894. In a report upon the matter the Committee point out that recent decisions in the High Court, as to the construction to be put upon certain sections of the Act, are such as appear to render the working of the Act as it stands very difficult. The first point in which amendment is desired is with reference to the procedure in the case of dangerous structures. Some delay appears to have occurred, owing to a recent decision of one of the magistrates, as to the service of the necessary summonses, in which he held that service by affixing a copy upon the premises was not sufficient unless the Council had, after some reasonable inquiry, failed to find the owner. The High Court, when applied to for a *mandamus* to the magistrate to hear the summons with which he had declined to proceed, decided that if the Council made reasonable inquiry, and could not discover the owner, a summons could be served by affixing a copy on the premises, but discharged the *mandamus* on the technical ground that no evidence was given before the magistrate that such inquiry had been made. The Committee think that that decision will put

A SERIOUS DIFFICULTY

in the way of proceedings, as it must involve in each case a search for documentary proof of the ownership of premises before a summons can be taken out, as without evidence of ownership—to get which evidence must, in many cases, be impossible—the case might be dismissed, with costs against the Council. They consider it essential that structures certified to be in a dangerous state should be dealt with with the utmost promptitude, and this will, they say, be impossible if such inquiries, which have never hitherto been required, have to be made. In illustration of the necessity for swift action, they state that only a very short time since, owing to a magistrate having refused to adjudicate upon a case, in consequence of a point raised as to the service of the summons, two men narrowly escaped being crushed through the falling down of part of a structure certified to be dangerous. The Committee are of opinion that the section of the London Building Act dealing with the matter should be so amended as to make it clear that in all cases of dangerous structures all documents in proceedings may always be served on some person on the premises to whom such documents relate, or, if no person be found on the premises, by affixing such documents thereto. An amendment of Section 14 of the Act is also to be asked for, in order to make it clear that no part of any new building shall be erected with its boundary fence or wall at less than the prescribed distance from the centre of the road. An amendment of another section is desired to make it clear that no working class dwelling shall be erected within 20ft. from the centre of the street or way on which it abuts. Amendments are also to be asked for in relation to the clauses providing that penalties for certain offences under the Act can only be enforced when an order of the magistrates is not complied with.

SIR ALFRED MILNER has laid the foundation stone of the new public library of Bulawayo.

For the construction of the new Wesleyan chapel about to be erected at Bournemouth, according to the designs of Mr. R. Curwen, Hamilton House, Bishopsgate Street Without, the tender of Messrs. F. Hoare and Sons, at £2268 10s., has been accepted.

The Midland Railway Company has under consideration a scheme for the construction of a central station in Sheffield. The enlargement of the present Midland station, and the doubling of the main line for several miles, cannot, however, be delayed any longer.

Men Who Build.

No. 51.

MR. SIDNEY R. J. SMITH, F.R.I.B.A.

IN continuation of our series of "Men Who Build," we now propose to consider the work of Mr. Sidney R. J. Smith, F.R.I.B.A., whose name has become familiar to most of us as the architect of the noble pile of buildings which, owing to the munificence of Mr. Tate, have been erected on the site of the Millbank Penitentiary, and on July 21st last were handed over by the Prince of Wales to the British Public for ever.

Mr. Smith's offices are situate in York Buildings, Adelphi, in an ideal position overlooking the Embankment Gardens, a quiet spot within a stone's throw of York Stairs—that fine old relic of the art of Inigo Jones, which is now being used by an ever economical County Council as a storage place for gardener's tools. The Adelphi has of recent years become quite a rendezvous for the architectural profession, who are gradually taking the place of their legal brethren.

Many years have now elapsed since Mr. Smith commenced his professional career in the office of Messrs. Coe and Robinson, whose practice was at that time a very extensive one, including the carrying out of the vast building operations at Olympia, several hospital works, and buildings at Rugby School and Wellington College. On the decease of the senior partner, Mr. Smith, who had previously been associated with Mr. Coe in many works, added to and completed the large Poor Law Schools at Norwood.

In these days, Mr. Smith was an ever enthusiastic and diligent student of Architecture, and still recalls with much pleasure his many travels both in England and abroad in search of beautiful buildings, the fruits of which study are very apparent in the many works on which we find him engaged to-day. Architectural students had not then nearly so many facilities for study that they possess now; true, the Architectural Association was in existence 20 years since, but it was a very different institution, being conducted more on a system of mutual help than one of instruction by professors; and Mr. Smith was, at one time, the secretary of the Colour Decoration Class, a branch of work in which he still takes a great interest, and the knowledge gained from the study of colour he has been enabled to put to some use, subsequently, in the decoration of St. James' Church,

Kennington. During his student days he was the fortunate recipient of many prizes at the Architectural Association.

Mr. Smith's practice has been principally one of public buildings, although domestic buildings form by no means a small item in the list of works he has executed. Besides the Poor Law Schools at Norwood, he was architect for an infirmary, probation wards, lodges, &c., for the Lambeth Board of Guardians at Norwood, and outdoor relief stations at Stockwell, Kennington, and Norwood.

Mr. Smith can certainly not complain of any lack of variety in the work which it has fallen to his lot to execute. He has had a hand in many branches of Architecture. Of churches we have several examples from his hand, notably St. James's Church, Kennington, Worthing Church, St. Crispin's Church and vicarage, Bermondsey, Studley Road and Stamford Street Chapels, and another—the new Church of St. Thomas, Telford Park—is shortly to be commenced. Mr. Smith has had some considerable experience in the planning of libraries. The first one designed by him was that at Norwood, erected in 1890, to be followed by those at Kennington, South Lambeth, Brixton, Streatham, and Balham, this latter being now in progress. The libraries at Kennington, South Lambeth, and Brixton were the gift of Mr. Tate. In the competition for the Cripplegate Institution, Mr. Smith was, on the recommendation of the assessor, Mr. Macvicar Anderson, awarded the premier place, and we hope the day is not far distant when we shall have the pleasure of seeing this building completed.

It is, however, as we have previously mentioned, in the Tate Gallery that we may see Mr. Smith's principal work, and this we now propose to briefly consider.

The building was a gift to the nation by Mr. Henry Tate, J.P., and it is perhaps within the memory of most of us the many difficulties about the site which so nearly caused



the donor to reconsider his gift. After having prepared several designs, the building was commenced about September, 1893. Extensions of the galleries are now being carried out, which, when completed, will more than double the present hanging space. The architectural style of the building is free Classic, with a Greek feeling as to the mouldings and ornamentation. The chief feature of the front elevation is the lofty central portico of six Corinthian columns, with pediment over. This portion projects some distance beyond the main face of the building, and has a bold flight of steps up to the entrances. At the extreme ends of this front elevation are two pavilions, each having an order of Corinthian pilasters raised on pedestals, between which are deep niches with an Ionic order of columns and pilasters supporting entablatures with semi-circular arches over. Considerable relief is given to the front elevation by the plain ashlar wall-space intervening between the end pavilion and the central portico. A rusticated basement running entirely round the building supports a pedestal treatment, from which the various orders of columns and pilasters spring. The whole of the ornamentation was modelled *in situ*, a plan which, where practicable, is of undoubted value. At the top of the main pediment is a figure of Britannia, whilst on either side rests a lion and unicorn.

In the interior are seven picture galleries, the largest of which is about 60ft. by 32ft.; the two flanking pavilions are treated internally as octagons. The entrance leads to a rectangular vestibule, with an Ionic order of columns running round the sides, with banded rustication between them; the ceiling is a plaster barrel vault, with panelled stone ribs springing from the Ionic entablature over the coupled columns. From the vestibule is entered a corridor which surrounds the central octagonal sculpture hall. A very pleasing feature is a circular Belvedere, with central fountain and drinking fountain on either side. We are enabled to give several illustrations of the building which have not hitherto been published.

Mr. Smith is now carrying out several houses in Park Lane, W., and close by, in Green Street, Park Lane, he is erecting a large Georgian town residence for the Right Honourable Lord Ribblesdale.



TATE LIBRARY, STREATHAM. SIDNEY R. J. SMITH, ARCHITECT.

REPAIR AND RESTORATION.*

BY THACKERAY TURNER.

MY chief object will be to try and explain to you what I have gathered about the different methods of repairing buildings whilst working for the Society for the Protection of Ancient Buildings. At the same time I am fully aware that words are of little value, and if I could but show you some actual work going on, it would be far more useful to you than anything I can say. Indeed, I should like to go a step further, and say that anyone actually carrying out a piece of work of repair would learn more than any amount of papers and examples could teach him. We cannot discuss the subject of restoration without considering what the word seems generally to mean. I take it that restoration means making new work to take the place of old, that is to take the place of existing old work which is partly

craze for restoration? The restorers often say to me, "We are only doing exactly what the old builders would have done." But did the old builders ever restore? I think it will be found that if work of a previous generation was in their way they chopped it out of their way, and had no hesitation in putting up their new-fashioned work cheek by jowl with the work of their forefathers, but the work which they did leave they left entirely untouched. The restorers leave nothing untouched—they go over the whole. How strange it seems that the architects of this century, if I may say so, seem to be fully convinced that they can greatly improve any mediæval building that is entrusted to their charge. It is quite appalling to go over a house or a church with the owner or the parson. Scarce ever do you find them admiring their possession with a reverent wonder, but always asking themselves and you how it can be improved. I am quite sure of one thing, which is that if you wish

restored building is better than an entirely new building accurately copied from what is called the old design. You certainly will never get the human quality in a work which is a mere copy. I do not believe that mediæval buildings were merely a kind of happy accident, but the men who made them did not work with the sole idea of being accurate, and, therefore, the workmanship of every part is full of interest. They were skilled workmen, who took a pleasure in their work, and thoroughly understood what it was they were making. The workman had a choice as to how he should work, and, supposing it were stonework, he could work half-a-dozen stones, each of which would be different, and yet anyone of the six fit for an intended place. Not so our workmen, who must work from moulds and templates, and who differ not greatly from good machines. Now supposing we architects take all this into consideration, I believe it will result, first of all, in our



CRIPPLEGATE INSTITUTE. SIDNEY R. J. SMITH, ARCHT.

decayed, or to take the place of old work which is supposed to have existed. If restorers act truly to their principles, this is what they do; but, as a matter of fact, it seems they allow themselves a far greater latitude. They design new seats and roofs, pulpits and altar rails, add vestries and organ-chambers, and call it all "restoration." The only true restoration possible is when a thing which actually exists is put back into its original place. Therefore, we will confine the word "restoration" to this meaning, and speak of our work as repairs and additions, and these works should be done in an entirely different spirit from that in which the restorers work. Here, perhaps, we may make a digression, and ask the question how it comes about that in our days there is this

work to be appreciated you should go to the men who make it. Perhaps another reason for the existence of restoration is that architects and those interested in their work have looked upon Architecture merely as a matter of design and composition. They have failed to find out one of the elements in mediæval Architecture which gives it its charm—namely, what may be called, for want of a better term, the human quality. Perhaps the best way to suggest to you what this quality is will be to ask you whether you find the reproduction of a Gothic design gives you the same pleasure as a veritable mediæval building? I feel sure you will say a restored building—that is, one which has had some defective stones replaced by new stones, and all incomplete designs completed in new work, has less interest than the unrestored building, but, to my mind, even this comparatively uninteresting

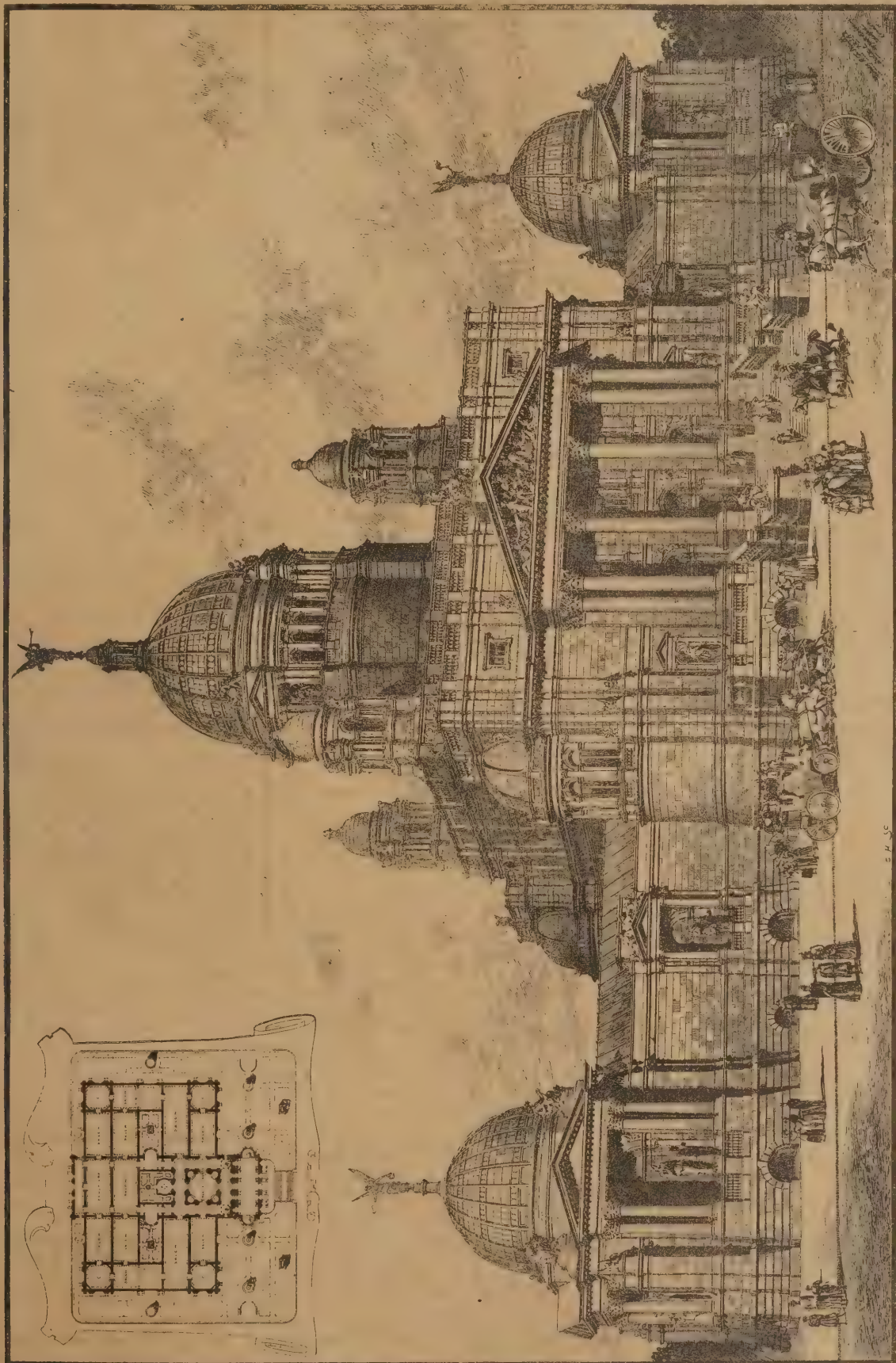
paying special attention to the texture and colour, or, in other words, materials; that we shall refuse merely to copy, and that we shall make it our aim to build well, and to the point, giving others working under us and with us as much liberty as possible. The final result of this course will, I believe, be that the love of restoration will die a natural death. Indeed, it is by some such course as this alone that our salvation in Architecture can come. The question of restoration appears to me to be mixed up so closely with the carrying out of new buildings that one cannot be considered without the other. There has been such a demand for restoration that it has naturally led us to concentrate our attention upon mediæval work, and necessarily to study it from an archaeological point of view. It has, in fact, trained us to be copyists. Now copying, except in the intelligent way of study,

* A paper read before the Birmingham Architectural Society on Friday, November 26th, 1897.

is fatal to Art; and it must be so, for a copyist does not surpass the work he copies, and if you could have a copy of a copy, of a copy it would certainly retain but few of the merits possessed by the original. It is impossible for us archi-

those working on the building, or the majority of them, are interested in the work. I felt this very strongly a short time ago when superintending the erection of two buildings not far apart. In the one case a clerk of

place by being told to speak to the foreman. And if I spoke to the foreman of the special trade, the head foreman seemed to consider I was unduly interfering, and in every case the clerk of works seemed to think his authority



NEW NATIONAL GALLERY OF BRITISH ART. SIDNEY R. J. SMITH, ARCHITECT.

itects to produce fine work merely by producing fine drawings, no matter if all the details are drawn full size. The human quality, which is absolutely essential if the building is to be of any interest, cannot be obtained unless all

works was employed, and then there was the builder's general foreman on the job, under whom there was a foreman for each of the trades, and if I spoke to any of the men, who were in fact simply hands, I was put in my

was being weakened by my not expressing my wishes to him. A more hopeless state of affairs could not well exist. It was like a dumb and blind man having to build by the aid of an interpreter. In the case of the other



ENTRANCE VESTIBULE, NEW BRITISH ART GALLERY. SIDNEY R. J. SMITH, ARCHITECT.

building everything was different. I got to know most of the men, and could talk to them about the work and about outside matters, and a joke did not come amiss. The workmen themselves made suggestions, and everyone seemed interested in the building. This, of itself, has a most stimulating effect on one. Having a key of the hoarding, I could study the building during non-working hours, and on a bright winter Sunday morning, upon slipping in to have a quiet look over the work with a good light, whom should I find there but the foreman who lived many miles out of town, and had come up on purpose with the same object as myself. Mistakes were made in this building, and we all know they must be made, but the overcoming of the mistakes led to deviations which I think in themselves proved of interest. But I will not weary you by pressing this point further, but will turn to the subject of repairing buildings. What I have said already directly bears upon this question, for a building cannot be repaired by drawings and specifications alone. The individual skill of the workmen largely comes in, and, indeed, drawings and specifications are of but little use, except in so far as they make you think the matter out beforehand, and explain the general drift of the way in which you intend to attack the building, to those whose skill has to carry out the work. We will now take into consideration the question of how repairs can and should be executed. The action which my Society took with regard to Peterborough Cathedral has been so publicly discussed, that I think it would be unreasonable for me to ignore it, and now the heat of the battle has passed, I may be allowed to speak about it without exciting

strong feelings. You are doubtless aware of the method which was laid before the authorities for rendering the structure secure, and I will therefore describe in detail how a building in a most critical condition has been dealt with in a similar way and made absolutely secure, quite recently. When I was first called in to inspect this building by the owner, I confess that it seemed to me a very bad case. Of this you can judge for yourselves when I tell you that, owing to sand being unobtainable in the neighbourhood, the mortar appeared to have been made simply of chalk. Be this as it may, it was found that wherever we could get at the core of the wall (and this could be done with safety at the window-sills) the stones could be lifted out and the so-called mortar could be bailed out with the hands. But this is not all, for the outer face of the wall was built of chequers of stone filled in with flints, but the stone chequers did not bond over one another more than an inch, and in many cases they did not bond at all. To add to this there seemed to be distinct signs of failure in the foundations. The method of arresting the disintegration of the walls up to the present time had been to put iron plates on the inside and outside, and bolt them together with small iron rods, but this was not proving successful, and the core of the wall was far too rotten to make the method safe. Fortunately the owner was a man who had had

PRACTICAL EXPERIENCE OF BUILDING

all his life, and could follow the explanation of the proposed method. He saw, moreover, that the only alternative to the proposal was to pull the walls down and rebuild them, and

then, of course, the chequered face work could never be rebuilt as the old builders had left it, and yet it was the antiquity of this magnificent old Elizabethan house which had been one of the great inducements which had led him to buy the property. You will gather that he decided to follow our recommendation, and as I had the privilege of being allowed to see the work whenever I liked, I will do my best to describe it to you. The foundations have been made substantial and sound by the old method of underpinning, and the walls of the basement, ground, and first floors have also been made thoroughly substantial and sound, and only the top floor remains to be done. In coming to details, we will leave the underpinning of the foundations, which was skilfully done (because everyone knows, or should know, about underpinning), and describe to you the first piece of work which I saw done. There was a pier between the entrance door to the cellar and a window, over which the dining-room chimney stack rose, and therefore, as you can imagine, there was considerable weight upon it. Before attacking this pier the core of the walls on either side had been renewed. This, it must be remembered, is an important point when carrying out this method of repair. You must not cut into the weakest part of the building, but begin at the sounder part and gradually grow up to it with sound work. The pier I have instanced was strutted up wherever a good hold could be obtained without cutting into it, and what seems to me important is that the face of the wall was supported by planks at intervals with shores up against them. The men began from inside at the bottom and slowly removed

THE CORE OF THE WALL

up to the stone jamb, and back to the external facing, and where a stone toothed well into the core they took the opportunity of temporarily supporting it by bricks set dry and wedged up. The hole made went right through to the back of the outer facing flints, and, what is very important, the flints and all surrounding work within the cavity was scraped and brushed clean of decayed mortar and dust. But when one saw it in this condition and saw all the temporary support given, obviously it was not dangerous. The excavation, although big enough for a man to work in, was after all small compared with the whole mass. The filling up of the cavity was carried out on the same scheme which applied to the whole building—viz., to level up the bottom of the cavity with concrete, and then to bed three courses of hard paving bricks on the concrete, skilfully bonding the outer face stones and the flint, as well as the stones of the door jambs, into the brickwork, leaving a toothing on the side opposite the door jamb to be picked up when an excavation on that side should come to be made. On this brickwork came a layer of concrete, followed by another layer of brickwork, eventually leaving the inside of the walls composed of bands of brickwork sandwiched in between beds of concrete. This is as clear a description as I can give you, but I must supplement it by saying that the work was done by an experienced hand, and many contrivances were used, such as arches spanning wide openings and corbellings to carry floor timbers, and in one case an arch laid horizontally to guard against special strain.

(To be continued.)

THE foundation stone of a new infirmary for males in connection with the Kingston-on-Thames Workhouse has been laid. The infirmary, with a nurse's home and other buildings, is to be erected at a cost of over £18,000.

THE Cardiff Corporation intends to erect, at a cost of £12,500, a fish and general huckster's market, on a site which it has acquired between The Hayes and the Glamorganshire Canal. The building will be constructed of brick, with stone dressings, and will consist of two storeys, independent of the basement. The building has been laid out by the borough engineer, Mr. W. Harpur.

BRECHIN CATHEDRAL.

A PROPOSAL has been made for the restoration of Brechin Cathedral, a venerable pile with an interesting history. The date of the Cathedral is generally given about 1156, the earliest portions standing belonging either to the latter part of the twelfth or the early part of the thirteenth century. Shortly after the introduction of Christianity by St. Columba, the Culdees founded one of their missionary centres at Brechin, and built a college in which to train preachers for the work of evangelising the people. Of the buildings erected by the Culdees during their time no trace now remains, with the single exception of the Round Tower, but all around they have left traces of their presence. Gradually the power of the Culdees fell away, and the Church of Scotland, which had hitherto been independent of Rome, came under the power of the Pope, to a great extent through the influence of Queen Margaret, the final transition taking place about 1124-1153, about which latter date Brechin Cathedral was first conceived. Commenced thus early, the church appears never to have been properly completed, but to have been added to at different times as the fancy or necessity of the Cathedral authorities dictated. Indeed, judging from the different styles of work, it appears to have had a somewhat chequered career, the greater part of the west gable and the south bays of the nave having been apparently rebuilt, as the result of some accident to the original building, about the middle of the fifteenth century. The church, which was dedicated to the Holy Trinity,

IN ITS ORIGINAL STATE

consisted of a choir without aisles, and a nave with five bays and side aisles, which were narrower than the present aisles, while its length would be about 84ft. A curious question raised by the proposed restoration is in regard to the transepts, which, it is believed, formed no part of the original plan of the church. That transepts—or, at any rate, a north transept—were attached to the building prior to 1806 is indisputable, as receipts granted by tradesmen for payments received on account of repairs done to the north transept are in existence, while old engravings also show the transepts. A feature in these engravings that points to the transepts being no part of the first plan, is the fact that their erection has closed the clerestory window in the east end of the nave, while the apparent narrowness of the openings that had connected them with the main body of the church seems to preclude the idea of their having been used by the worshippers in the ordinary services. So far as is known the Cathedral did not suffer any serious damage at the Reformation, the inhabitants having been rather cold in the matter, and not by any means fired with the iconoclastic spirit that animated their countrymen at that time; and the vandals of a later age must bear the shame. Tradition lays the blame on the soldiers of Cromwell, with what justification is doubtful. What is more probable is that the building suffered more through that spirit of indifference with which for a long time such relics were regarded, and that once the seeds of decay had set in, the work was helped forward, as it has been in too many cases, by using the stones of the decaying part for the erection of other buildings. The greatest damage was, however, done in 1806, when the church was reconstructed. To undo the damage then done is almost impossible. Nothing was too sacred to escape the destructive energy of those engaged in the work. Even

THE ROUND TOWER

itself had a narrow escape, a proposal having been made by the architect to demolish it and use the stones in the reconstruction, on the score of economy. Fortunately this design failed, a threat from a neighbouring laird, that he would "hang the first rascal from the top of the tower who dared to touch a stone," having due effect. But the spirit that animated this proposal may be seen in the church as it stands to-day. The aisle walls and transepts were demolished, only the walls being rebuilt,

and these were carried up, closing the clerestory windows in the nave, the nave and aisles being enclosed under one roof. Galleries were then introduced, running right round the church, the pillars and wall of the nave being cut and broken to admit the woodwork. A plastered ceiling, which hid the roof and closed up the traceried work of the great west window, was added, while the stonework of the nave was coated with the same material. Of the original building

THE ONLY PARTS NOW VISIBLE

are the arches of the chancel and the west doorway, the latter having apparently escaped from the accident that led to the reconstruction of the west gable. The chancel, or such of it as now stands, is an ivy-covered ruin, but sufficient remains to show its original grace and beauty, and form a guide for the restoration of the remainder. The carved work of the west doorway is in a somewhat dilapidated condition, but otherwise it has escaped. Indeed, the whole west end, with the exception of the south aisle, has been practically preserved in its first condition; the doorway, great window, and tower, the latter built about the middle of the fifteenth century, having to a considerable extent escaped. The bell or square tower is 70ft. in height, with an octagonal steeple 58ft. high, giving a total height of 128ft. Entrance to the tower is had by a short flight of steps on the north side, but this entrance appears to be of recent formation, and originally the only entrance was from the church. On the ground floor there is a vaulted chamber, now used as a Session House, and which was originally the Chapter House of the Cathedral. The ribs

supporting the roof spring from corner capitals, and in three of the corners there are carvings of foliage, while in the fourth there is a dog picking a bone. The other stories in the tower are used as a belfry, and for other purposes. In the interior of the church the walls of the nave are still mainly in their original condition, the stone being, as stated, coated with plaster, and the niches are distinctly visible from the interior. The work involved in carrying out the restoration is very considerable, and it is understood that a sum of at least £10,000 will be required.

LEAP CASTLE.

NEWS comes from Birr of the discovery of a series of interesting "finds" in the historic Leap Castle. The first and most important was an eleventh century stone spiral staircase springing from the first floor level and terminating at the summit of the great tower, 100ft. high. This relic of a remote past is in a splendid state of preservation. The finely-cut stone steps are laid with mathematical accuracy, and are large, like the passage itself. The second "find" is an entrance to the guard-room cut out of the rock, and which was up to the present believed to be a mass of solid masonry. The present owner has put into a complete state of preservation the ancient chapel, an apartment 25ft. square and high, which is on the top of the tower, and here has been discovered a very large and fine Early English eastern window, which, from its great elevation, commands a view embracing eight counties.



CENTRAL ENTRANCE, TATE LIBRARY, BRIXTON. SIDNEY R. J. SMITH, ARCHITECT.

IN LIGHTER VEIN.

THE A.A.'s "BROKEN CONTRACT."

ONCE a year, at any rate, it is the custom of the Architectural Association to forsake, in its gatherings, the council chamber for the theatre, to neglect the art of the architect in favour of the art of the playwright. And, be it said, this annual diversion is invariably attended with the most successful results—though we understand there is no truth in the statement that that very staid and sober body, the Royal Institute of British Architects, has, by the attractiveness of the social functions of the more frivolous A.A., been lured into like levity. There is, we suppose, a light side to Architecture, or rather to the practice of it. If we mistake not, the vagaries and idiosyncracies of certain persons connected with this most ancient and honourable Profession have from time to time been exposed before an amused public, and it is well that the members of the A.A., relaxing their professional austerity, should come once a year to witness "a comedy of Architecture." For in its amusements, the A.A. never deserts Architecture. "The Broken Contract" was the title of the play with which the members were this year entertained, and they assembled in large numbers at the conversazione held at the Matinée Theatre, Langham Place, on Friday night. Mr. F. D. Clapham is the author of the play, and whilst it is unreasonable to hope that he has produced anything which will be handed down for the amusement of posterity, it must go to Mr. Clapham's credit, and also to the credit of Mr. Leonard Butler, who supplied the music, that jointly they succeeded in unflinchingly entertaining the A.A. If we were to venture on further criticism, we should say that there is too much of a sameness about these A.A. plays. "The Broken Contract" as the sub-title informs us, deals with "an Egyptian enigma" in two acts. The action of the piece introduces us to a group of ancient Egyptians and a band of latter-day architectural tourists, who, by the many professional allusions with which the libretto abounds, cause great merriment, and whose

"... object is to prove the tale
Of Egypt's bygone history,
And see what customs did prevail
In this strange land of mystery."

We will not recount how they set to work on their task—a task which will probably never fall to the lot of the present-day student; but the piquancy of the professional allusions is never lost, as:

"You may perhaps have noticed what a lot of things are done

By cooking, yes, by cooking,
And it may be that a competition is very often won

By cooking, yes, by cooking.
On plan you'll find there's nothing underneath
A three-foot wall,
A column in the attic perhaps has no support
at all;

You can make your elevations, too, look either
low or tall

By cooking, yes, by cooking."

And the A.A. excursion, too, proves fruitful in the librettist's hands. Its pleasures are duly extolled:

"A jolly time we spend,
Our work and pleasure blend,
So now we recommend
To each and every friend
That they come on our excursion
for next year."

Clearly the play has been written by amateurs for amateurs, but as such it deserves all praise. The piece was very adequately produced, and among the performers, the efforts of Miss Mabel Engelhardt, Mr. Alfred Stalman, Mr. Frank Collins, and Mr. S. Constanduros were particularly noticeable.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 1st, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ACCORDING to Stow, St. Giles Church, Cripplegate, which was damaged by the recent big fire, was built a quarter of a century after the Conquest. It was nearly burnt down in 1545, and rebuilt immediately afterwards. On the other hand, it escaped the great fire of 1566. Milton lies buried in the present edifice; and amongst other noteworthy personages there lie interred here Foxe, the martyrologist, Sir Martin Frobisher, who was buried in 1595, and several members of the Lucy family, whose names are associated with the boyhood of Shakespeare. The registers and plate were promptly rescued. The former are interesting, and contain the record of the marriage of Oliver Cromwell and Elizabeth Bouchier, on August 22, 1620.

THE Italian authorities are so generally careful in sanctioning restoration of public monuments that we regret to have to report an instance where a most precious example of early Italian Art is at present receiving unsatisfactory treatment. This refers to the tabernacle or high altar of Or San Michele, at Florence. It will be remembered that it was originally ornamented with mosaics in precious stones. These, it is stated, were taken out by the French about a hundred years ago, and pieces of glass with the pattern painted and gilt on the inside, were set up in place of the old work. The French method is continued, only the drawing of the ornament being more careful. But the flashy, garish effect remains, the new colour being, perhaps, even more crude than the former. Some beautiful specimens of early Florentine mosaic ornament let into stone, as in the Or San Michele altar, are to be seen on the staircase of the Museo del Duomo, and surely if the restoration was to be made it might at least have been on the old lines, of which there is such a fine example at hand.

A PLEA is being made for the provision of cloak-rooms in churches. One correspondent describes churches as "storehouses by construction of the week's fog and damp, rarely efficiently ventilated or of proper temperature." "If a theatre were to be built with a like indifference to draughts and a like disregard for the comfort of the public, we should," the same correspondent remarks, "hear denunciation throughout the land."

THE London County Council intend to introduce into Parliament in the coming session five new bills. One of these proposes to amend the London Building Act of 1894 (fully described elsewhere). Another measure provides for the admission into the main drainage system of the Council of sewage from part of Acton (payment to be made for the same), and for the reception, treatment, and disposal of the sewage by the Council. By a third measure the Council seeks power to make a short new street in Westminster, to join a new street now in course of construction on part of the site of Millbank Prison; to widen parts of York Road, Wandsworth; to

widen a street called Albert Embankment, near Vauxhall Station on the east side, between Upper Kennington Lane and Vauxhall Walk; to take down the bridge over the Regent's Canal, known as the Rosemary Branch Bridge, and to effect various other improvements at Nelson Square, Charlotte Street, Blackfriars Road, Long Street, and Shoreditch. The other bills are to authorise the laying of tramways.

It will be remembered that the enlargement of Hampstead fire station was estimated by the London County Council's architect to cost £4170, but, upon the manager of the Works Department declining to undertake the work on this estimate, public tenders were invited, the lowest being £4955. The architect now says that his estimate was made at the beginning of May last, while the tenders were received on Oct. 26. Six months had therefore elapsed, during which time the labourers' wages and the prices of certain materials had increased, while there was an unwillingness to tender under existing conditions of contract. The estimate of the manager of the Works Department for the work is £4800, and a proposal will be made in due course to entrust the work to the manager.

THE Rev. Douglas Y. Blakiston, of Chichester, writes:—"The present seems an opportune time, now that attention is called to our cathedral, to notice a most interesting wall-painting in the chapel of the Bishop's Palace, which is close to the south-west tower of the cathedral. Many years since, Bishop Durnford was so kind as to show me this chapel to view beautiful tessellated pavement, placed at his own expense to form the floor of the sanctuary. I noticed a fresco of the Virgin and Child in the south wall of the chapel, which, though the colours were faded, was not materially injured, but which might suffer from damp, &c. When attending the funeral of the noble bishop I had another opportunity of inspecting this very interesting work, which certainly had suffered more injury from damp, large black blotches appearing in the diaper of the background, &c. My old edition of Murray's Handbook to Sussex, page 348, only says: 'The chapel is late E.E. with some additions. On the wall a curious fresco head of the Virgin has been uncovered.' The fresco is painted on a circular recess (about 3ft. across), and represents in pure but faded and simple colours, the Virgin with the infant Jesus on her knees; the details (Anglo-Saxon?) and form of the chair, with terminals resembling swans heads, are most curious. Through the courtesy of the Sussex Archaeological Society, I am enabled to give a reference: 'In a volume published in 1883 . . . and entitled "A list of buildings in Great Britain and Ireland having mural and other painted decoration, &c.," by C. E. Keyser, M.A., F.S.A., it says—Chichester, Sussex, The Bishop's Palace, Domestic Chapel of the Bishops, the Virgin and Child. Time of Henry III., i.e., A.D. 1216-1272. Personally, I hope this painting will not be much 'restored,' but it might be, at little expense, protected and preserved from the further injuries of age and damp."

SOME unusually interesting wall paintings have been discovered in the remains of a Roman villa at Boscoreale, on the flanks of Vesuvius. There are decorative designs of flowers, birds, and fishes, mythological fancies, landscapes, and sea pieces. But the freshness and realism of some of the subjects is remarkable. One represents a country house on a river, with a man angling from the bridge. The place was a villa and farmstead combined. On the granary walls are writings referring to storage of beans and oats. In the wine cellar are four large wine vases. Seven skeletons have been found, and the farm people appear to have fled for shelter to the villa when destruction came upon them.

THE work of demolition in connection with the frontage of Drapers' Hall, Throgmorton Street, is proceeding, but the alteration will in no way affect the handsome courtyard, or,

indeed, the internal arrangements of the hall. The fine marble staircase has been removed, and when the new work is completed the staircase will be situated in the centre of the building. It will then be in a much more suitable position, as it will give access to all portions of the hall. The architect is Mr. T. G. Jackson, R.A., from whose plans a handsome stone building will be erected facing Throgmorton Street. The building will be let as offices.

In the corridor of the School of Art at Ghent there has for many years stood a great half-length statue, or exaggerated bust, representing Napoleon as First Consul, draped in the folds of an ample cloak. This effigy attracted but little attention, and no one seemed to know how it came there or who was its sculptor. M. Masterlinck, the custodian of the school, bethought him the other day of examining more closely the despised marble, and came to the conclusion that it was a fine work by the eminent French sculptor, Rude. He had some photographs taken, which he

admiration. In an adjoining case are some splendid specimens of carved wood, comprising portions of the frieze of a room in carved fir wood; a charming panel; a cabinet of ebony and other woods, inlaid with ivory; and a box or coffer of walnut wood, carved all over in Gothic tracery. A third case contains some interesting examples of wrought-iron work, amongst which may be mentioned an old picket candlestick bracket of quaint design; ancient locks of complicated mechanism, and enriched with foliated open work; and an old-fashioned iron knocker. On the walls is a set of photographs of different articles of carved wood, the originals of which are in Berlin, at South Kensington, or in some other museum.

An object of special beauty in the collection is a mirror frame of ebony, inlaid with foliage and figures in engraved ivory, and with shell cameo medallions of small Roman heads and zodiacal signs. There are some beautiful specimens of linen work and old damask patterns and designs. Much attention will

of Edward I. (1293), Richard II. (1394), and James I. (1623).

SIR JOHN WOLFE BARRY, president of the Institution of Civil Engineers, specially visited last week the Trades Technical School, carried on by the Company of Carpenters and other City guilds connected with the building trade, in Great Titchfield Street, Oxford Street. The fifth session of the institution has now been started, and, though the school commenced in a small way, yet the great need of the method adopted of training the craftsman was amply shown by the fact that during the previous session 378 individual students had attended the various classes. Students who go to the school go to work, none but actual craftsmen are admitted, and no social entertainments or relaxations are permitted, as is the case in other training schools. To judge the work of the student and the way he does it is believed by the managers of the school to be the only sound and true test of the capability of a student, and this is the only examination that a student in this school has to undergo.



ELEVATION TO GREEN ST

NEW RESIDENCE FOR LORD RIBBLESDALE, NORFOLK STREET, W. SIDNEY R. J. SMITH, ARCHITECT.

sent to Dijon, the sculptor's native place, and the committee of the local museum recognised the bust at once as the creation of their fellow-citizen in his best period. The citizens of Ghent are overjoyed at this discovery, and the interesting relic has been promoted to a place of honour in the gallery.

THE annual change in the Art objects lent by the authorities of the South Kensington Museum for exhibition in the Art Gallery and Museum in connection with the Belfast Free Library, has recently taken place. Among the exhibits are exquisite specimens of Wedgwood and other ware of rare and beautiful designs. The cane-coloured and delicate lilac-tinted samples are sure to be specially admired, and the frame of turquoise-blue cameos, as well as the examples of Leeds ware, will also come in for a considerable amount of attention and

doubtless be attracted by the Mohammedan prayer carpet of white cotton, quilted with white silk in diaper of scale forms, and embroidered with coloured silks in chain stitch, with sprigs of carnation symmetrically ranged over the ground, and bordered on three sides. There are also four frames of original designs for wall tiles by Sir E. J. Poynter, P.R.A., and eight pictures, amongst which may be noted "The Lake of Constance," by A. Zimmerman; "View of Old London Bridge," painted in 1650, by Claude de Jongh; and "The Pool," by W. Mulready, R.A. The other objects include beautiful architectural models in stucco of portions of the Palace of the Alhambra, Granada, and a fine photograph of a guitar inlaid with tortoiseshell mother-of-pearl and ivory. Visitors to this room should not forget to examine the ancient paymaster's money-bags, used for conveying money for paying the wages of the soldiers in the reigns

IN June last the London County Council served a notice on the "owner" of the Church of St. Mary, Charing Cross Road, that the west and south walls must be repaired. The Rev. R. Gwynne, the vicar, claimed that he was not the owner, according to the meaning of the Acts, and took no action. Eventually an order was issued upon him, specifying the repairs required by the County Council, and directing that they should be carried out at once. As nothing came of this, the County Council has stepped in and pulled down so much of the edifice as was dangerous, and the body of the old church is now open to the elements. It was in 1677 that this church was built by one Joseph Georgeirenes, Archbishop of the Island of Samos, who had been driven from his See by the tyranny of the Turks. He has recorded this in an inscription over the west door. The church has been in various hands. The French Protestants occupied it next until the year

1822, when, their lease being nearly expired, they sold the remainder of the term for £200 to a congregation of Calvinist Pædo-Baptists, who continued there till 1849. In that year the old fane was in danger of being turned into a music hall, when the Rev. Nugent Wade, rector of St. Anne's, Soho, bought in for £1500, and after being arranged for the service of the Church of England, it was in 1850 consecrated by Bishop Bloomfield, under the title of St. Mary-the-Virgin, as a chapel-of-ease to the mother church. The foundation stone of the clergy house was laid by Mrs. Gladstone in 1869; that of the chancel by Canon Liddon on April 17th, 1872. Sir Roundell Palmer (Earl of Selborne) presented the stone Greek cross over the west door. It is estimated that the cost of carrying out the improvements necessary will entail an expenditure of £1000, and a public subscription is being raised to meet that amount.

MR. CHARLES JOHN SHOPPEE, Past President of the Surveyors' Institution, and Fellow of the Royal Institution of British Architects, has just died at his residence, 41, Mecklenburg Square, in his 73rd year. Mr. Shoppee represented the Surveyors' Institution as a delegate at two Congresses of Surveyors of different nationalities, held in Paris in 1879 and 1880. He was well known as an able architect and surveyor, and had very considerable experience as an arbitrator and umpire in references and compensation cases. He served for two years as President of the Surveyors' Institution, on the Tribunal of Appeal with regard to the Metropolitan Building Act. He was the architect for the restoration of the old Hall of the Barber Surgeons Company and for the development of their estate in Monkwell Street, and represented that Company upon the Committee for the Irish Estates; he also acted for the Bakers' Company in conjunction with the late Mr. Joseph Clarke. He was chairman and treasurer of the Chromo-Lithographic Art Studio, and was an authority upon heraldry, scarce books, and prints.

It is reported from Montreal that Mr. J. I. Tarte, the Canadian Minister for Public Works, has had a new plan of harbour improvements prepared in his department, and has forwarded it to the Montreal Harbour Commissioners. The new plan provides for the construction of two piers in the centre of the harbour, with wharves of 300ft. wide and 700ft. long, with the exception of the first one, which is 600ft. on one side, on account of its being nearer the entrance to the canal. There will be over 1000ft. between the canal and wharf. The long wharf will be extended to 250ft., so that railway tracks, switches, sheds, and other facilities may be provided.

In regard to the offer of Mr. D. P. Sellar, to present to the Corporation of London some 200 Old English, Italian, and Dutch pictures, to form a nucleus for an Art Gallery at Guildhall worthy of the City, the Lord Mayor has received a letter from his predecessor, Sir G. Faudel Phillips, stating that he accompanied Sir E. J. Poynter, P.R.A., and Mr. Temple, director of the Art Gallery, to view the collection. Taking into consideration the various quality of the works—though gratefully recognising the well-intentioned offer—they could not advise the Corporation to accept the whole or any portion of them. At a meeting of the Court of Common Council, Mr. Sellar's offer was considered and rejected. At the same time the thanks of the Court were ordered to be sent to Mr. Sellar.

THE English company which works the marble quarries on Mount Pentelious, which of old furnished material for the Parthenon, has offered blocks of large size and flawless quality to be used in restoring and strengthening that edifice. The work was interrupted by the war, but the Athens Archaeological Society has decided to resume it. The western end of the Parthenon has for some time been masked by a heavy wooden staging, and last summer some blocks of new marble were lying about,

whilst one or two were in position. Their intrusion is a pity, but it is justified under the present conditions.

DURING the last session of Parliament the London County Council obtained powers to construct under the river at Greenwich a tunnel for foot passengers. The sum which the Council is authorised by the Act to expend on the work is £70,000. When the matter was before Parliament certain compensation clauses were inserted, but the estimated cost was not altered to meet the varied circumstances. The Bridges Committee of the Council have now had an amended estimate of the cost submitted to them, and they are advised that it is necessary to provide for an increased sum of £30,000. The Committee accordingly communicated with the Finance Committee on the subject, and they have suggested that the carrying out of the scheme should be postponed until Parliament has sanctioned the further expenditure, as they have been advised by the Council's Parliamentary agent that it would be more expedient to defer the work until the judgment of Parliament has been obtained on the increased estimate, and that the commencement of the work in the present circumstances involves at least the theoretical risk that large expenditure may be made and heavy liabilities incurred, while the Council has no statutory power to raise the money estimated as required to carry the work to its completion. The Bridges Committee state that the case is different from one in which, after the commencement and partial execution of the work, unforeseen difficulties occur, increasing the cost above the original estimate, and they point out that the matter does not permit of delay, as the inhabitants of Greenwich and the surrounding localities have pressed for a speedy completion of the work. Moreover, they do not think that the Council will be compromised if they proceed with so much of the work as will involve an expenditure not exceeding the sum mentioned in the Act, and in the meantime Parliamentary sanction can be obtained for the further amount of £30,000. They have reason to believe that if the work were to be advertised at an early date, the cost would be less than if the carrying out of it were postponed until the latter part of next year. The further expenditure is, in their opinion, problematical, but it has to be provided in consequence of the action of Parliament in inserting the clauses for compensation to persons interested in the existing ferry rights and ferry.—At the meeting of the Council the recommendation of the Committee was approved.

A SPLENDID font has just been dispatched for the new Cathedral at St. John's, Newfoundland. It has been designed by Mr. J. Oldrid Scott, F.S.A., under whom Newfoundland Cathedral, which was unfortunately consumed by fire a few years ago, is being rebuilt by sections as means allow. The font is in the decorated style of Gothic Architecture, and has a central shaft surrounded by columns of polished Levanto (Greek) marble, a beautiful and rare material. The bowl is circular and of the same costly and exquisitely mottled marble—it is of exceptionally large proportions, girthing over 10ft.

SYMPATHETIC pilgrims to the old prison of Chillon, on the Lake of Geneva, have no doubt gazed with reverent eyes on the track worn in the stone pavement round the pillar to which he was chained, by the unhappy Bonivard, during his three years' incarceration. This year the famous footprints mysteriously disappeared and M. Vuillet, a deputy, inquired of the Government what had become of them. Thereupon M. Vecquerat, Councillor of State, rose, and unblushingly explained that they really had never existed at all, but were artificially manufactured to satisfy the demands of a sentimental public. This year the usual repairs were done so late that there was no time to renew these venerable shams. Tell has dwindled into a myth; Rousseau's grave is untenanted, and now Bonivard will become a by-word.

MR. J. WATTS, a member of the Lee Board of Works, writes: "A speculating builder acquired a piece of land in Charlton, in what was then a good residential neighbourhood. He applied to the L.C.C., and they granted him permission to build (shops) far beyond the evident line of frontage, without consulting the Local Board at all. The board protested, and the L.C.C. discovered what a mistake they had made, but were unable to revoke their decision once given. A great deal of law followed, probably £3000 worth, but the unnecessary shops, and an abortive public-house 50ft. high, stand as the most convincing evidence of the folly of governing Charlton from Spring Gardens. No local body would have permitted a builder to build beyond the frontage clear to everybody, and defined by the architect of the L.C.C. So, as a much-injured parishioner, I acclaim Lord Salisbury's announcement, that powers which have been so ill-exercised are to be taken away, at the same time admitting that you could not expect such a centralised body to do any better."

NORMANDY and Brittany, once so popular with our painters, have of late been somewhat neglected. Mr. H. S. Hopwood, in over sixty pictures now on view at the galleries of the Fine Art Society, demonstrates that there is plenty that is picturesque and a sufficiency of eminently paintable material still remaining in the quarters alluded to. The brightness of Normandy and the more sombre mellowness of Brittany find adequate rendering in this exhibition, and the difference between those two portions of France, both as regards scenery, people, and costume, is most clearly defined. The fine colour with which he has imbued some of these picturesque, sombre interiors, shows how closely he has studied his subjects, and how cleverly he has caught and reproduced their special characteristics. None will appreciate this collection more than those who are well acquainted with the highways and byways of Normandy and Brittany.

THE Dean and Chapter of St. Paul's have decided to celebrate the bi-centenary of the opening of the Metropolitan Cathedral tomorrow (Thursday), by the holding of a special Masonic service. The service is declared officially to be in acknowledgement of the tradition that Sir Christopher Wren was a freemason, Master of the Lodge of Antiquity, and that most of the workmen were also members of the fraternity. It is proposed that the offertory shall be for the purpose of enabling Freemasons as a body to take a distinct share in the completion of Wren's great work, by decorating a panel or bay with mosaics (with an inscription to record the fact) according to the scheme now being carried out under the direction of Sir W. B. Richmond, R.A., K.C.B.

SIR JOHN WOLFE BARRY, speaking as President of the Institution of Civil Engineers, at the dinner of electrical engineers, said they were all engaged in applying the great forces of Nature for the use and convenience of man. One could not help seeing that the value of abstract science in its various applications was much more recognised now than it was twenty-five years ago. This country would be far behind if it relied entirely on practical knowledge or what was understood by the homely expression of the "rule-o'-thumb." Everybody now understood that they must go to science for new developments.

THE Municipality of Barcelona has officially announced the opening of the Fourth General Exhibition of Fine Arts and Art Industries, which will take place on April 23rd next. The Mayor of Barcelona will invite the most notable and distinguished foreign artists on behalf of the Municipality, through the respective committees, to send some of their works to the Exhibition, and all costs of transport, going and returning, will be borne by the town. The works acquired by the Municipality will be destined for the Fine Arts and Art Industries Museums.

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CITY FIRES.

A CRITICISM ON THE CRIPPLEGATE CATASTROPHE.

THE Cripplegate catastrophe has naturally prompted numerous appeals for measures of various descriptions for the prevention of fire. Before dealing with these appeals, a few facts concerning City fires of the past fifteen years, with special reference to the latest disaster, may be interesting—and, perhaps, more than interesting. Whenever the seat of a fire has been in the heart of a network of courts, alleys, and narrow thoroughfares, there the greatest risk of widespread extension has always existed. The London County Council has no control over the City architect's department, and cannot be held responsible for the class of buildings which are erected in such close juxtaposition as those in the immediate neighbourhood of the General Post Office, upon a system which experience has shown to be the reverse of fireproof. Wherever iron girders, huge plate-glass windows—which, upon breaking, admit a gush of air to fan the furnace—and slender party walls, with matchboard linings, form structures with highly inflammable contents, the work of fire extinction is always difficult. It is not easy even when the firemen have ready access on all sides, and great damage may be done, as in Charterhouse Square on Christmas Day, 1889, when a corner plot, occupied with buildings of six floors, and intersected with passages, was ravaged by the flames. It was recorded at the time, says the Daily Telegraph, that, twelve minutes after the alarm was received at Whitecross Street, within a quarter of a mile, the roof having already fallen in and the floors given way, the expansion of the iron girders and pillars inside the building thrust out the walls—which were not sufficiently strong to resist the pressure—and

TREMENDOUS MASSES OF MASONRY

were projected into the square. Captain Shaw himself directed operations at the Clerkenwell fire in 1885. Thirty steamers were engaged, with three hydrants and a standpipe, and the plan of combating the flames was not dissimilar to that adopted by Commander Wells on Friday week. Where the fire had obtained hold, between Charterhouse Buildings and Foresters' Place, it was allowed to burn itself out, the efforts of the men being directed to save adjoining properties, including the Foresters' Great Hall, in which they were successful after about three hours' hard work, though the danger was not at an end until nearly five hours after the first alarm. It is

THE NARROWNESS OF CITY STREETS

which is the next great danger, after inflammable buildings and stock, that is to be feared. Fires seldom are allowed to make any difference in the lie of streets, though Wood Street, after the 1882 visitation, was slightly widened. Buildings are, as a rule, erected on the old sites, so far as these can be ascertained, and, though they may differ in construction, the public thoroughfares and the rights of way through alley and court are all preserved. It is a pity, perhaps, that the opportunity of clearance by fire is not more frequently seized to effect great improvements. What, for example, could not the Goldsmiths' Company, as the chief freeholders, do in replanning Cripplegate upon more enlightened principles? Whenever there is difficulty of access the firemen must, as they did on Friday week, play round the furnace, in the hope of checking its progress. They were happily favoured by the fall of a house in Jewin Crescent, which enabled them to meet the foe on better terms. Had not that house given them a vantage point, the area of the outbreak might have extended much further toward Australian Avenue.

THE CONDITIONS AT CRIPPLEGATE

recalled those of the Paternoster Row outbreak, which was similarly hemmed in with buildings, and they were absolutely identical with those of two fires in the immediate neighbourhood, to which the brigade succeeded in putting an effectual stop. The earliest of these outbreaks

was on February 4, 1890, in a hidden building approached from Gresham Street, Aldermanbury, and Love Lane. Iron pillars, joists, and concrete floors helped to make the fabric sound, and limited, it was supposed, the extent of the disaster. In this case Captain Shaw availed himself of a building at hand as a convenient base for effective action with the hose, and a furnace of about 15,000 square feet was confined to these bounds until sparks unfortunately ignited other premises.

THE DUTY OF ARCHITECTS.

Mr. T. R. W. Mossman, of 16, Cheriton Square, S.W., makes some very pointed comments in the Times, which deserve careful attention. In a letter he says: "I venture to hope that the great destruction caused by this fire will be the means of impressing upon architects and others the necessity of reconsidering the manner of constructing buildings of a similar class as those which have been destroyed. I admit that architects (I am one myself) are not altogether responsible for the present state of affairs as regards construction; they are too often handicapped by the question of expense, and, so long as the regulations of the Building Act and the insurance offices are complied with, things will no doubt remain pretty much as they are. But many will agree with me that our warehouse architects might very well spare a little of the money which they use for plastering a lot of meaningless detail and ornamentation on the fronts of their buildings for the better construction of the building itself. As can be seen from an inspection of the devastated region, a great deal of the usual, and of course necessary, wrought and cast iron was used in framing the floors and walls together, and the fire has treated most of it with the greatest contempt, as it always does when it has time to give it proper attention. To the failure of the stanchions, columns, and girders to withstand the great heat must be attributed a great deal of the destruction and rapidity with which the fire spread. During the fire I witnessed several ornamented cast-iron stanchions, which supported

IRON GIRDERS OVER SHOP FRONTS,

gradually buckle or bend inwards to the heat and fall away, the walls overhead collapsing almost immediately. Girders, I noticed, which had their bearings on brick piers instead of stanchions resisted the fire wonderfully well. Although unprotected, these girders must have expanded laterally to their utmost limit, but so long as there was sufficient space at their ends to allow for such expansion the walls were not bulged out. Why architects do not more often encase their stanchions and girders in brickwork, terra-cotta, or other fire-resisting material I cannot make out. Fires are always with us, and always will be, and so long as it remains the custom to leave columns, &c., unprotected, destruction to a greater extent than is necessary will follow in its wake. In my humble opinion, a deep girder of iron is preferable to a shallower one which must be supported by a column. The column being isolated, the flames can "caress" it from top to bottom, and eventually destroy it, and if it is a ground-floor column, down comes the superstructure. The great objection urged against encasing columns or stanchions is that of occupying too much space, and space in the City is valuable, as we all know; but I venture to think that business firms would prefer to give up the small amount of space required for this purpose in order that, in the event of fire, their buildings might be reinstated in as short a time as possible. Insurance companies would lower their rates, as they attach great importance to the covering up of ironwork. As regards the

FLOORS AND CEILINGS OF WAREHOUSE

and such-like buildings, these, I think, should always be made as fire-resisting as possible. Very few of the buildings destroyed in this fire had such floors, and the tremendous rapidity with which the flames demolished one building after another can easily be accounted for by facts just stated and also by the narrowness of the streets, the close proximity of one

building to another in the rear, as well as to the large quantities of the most combustible materials stored in nearly all the buildings. In conclusion, I should like to say I was much struck by the way some of the terra-cotta work had withstood the flames; it seemed none the worse. Not so the stone façades, however; they presented a sorrowful appearance, hardly a stone but what has been split. As for cornices and pediments, they are no more. A few iron doors, constructed, doubtless, according to the Building Act, will, I fear, not be of much use to any one in future; they may have stemmed the flaming tide for a few minutes, but they had to cave in soon, as is evident from their appearance. I should prefer to put my trust in a well-made, solid oak door."

A CALL TO "MODERNISE."

"When the City of London was destroyed by fire, in 1666," writes T. H. W., "Sir Christopher Wren designed a new City which, had it been built as he planned it, would have made of London the finest, the most commodious, and the safest town in the world. Funds were wanting, and the rebuilding of London was left to private enterprise—with the result that we know. Last Friday week a fire cleared 17 acres of ground in the heart of London. We have all been lamenting the disaster; but if the Corporation is alive to its duties, the conflagration may prove a blessing in disguise. The region destroyed was a region of narrow, inconvenient, and dangerous streets, unworthy of a modern capital, and entirely unequal to the volume of business which had daily to be transacted there. I venture to suggest that the Corporation has now a plain duty before it, and an opportunity of doing a service to the citizens, of conferring a benefit upon the trade of the world, and of enhancing its own reputation, which may not occur again for half a century. Let it boldly take over the whole devastated area; let it pay no regard to the old streets and landmarks; let it plan these 17 acres upon modern scientific principles; and let it make of the Jewin Street region, a noble, safe, and convenient business quarter. If five millions are required for the purpose that sum can be raised in one day by a Corporation loan carrying 2½ per cent. interest."

PRACTICAL PROPOSALS FOR ARCHITECTS.

"What is Fire Protection?" This is the subject of a pamphlet issued by the newly-formed British Fire Prevention Committee. Mr. Edwin O. Sachs is the author, and in the course of his observations, remarks:—"I consider that stability, with due attention to sanitation and fire protection, should be the essence of modern building construction. Surely inferior construction not only shortens the life of a building, but it is also in every way detrimental to the interests of a *bona fide* investor. Safe construction enhances the value of a property, and the protective measures need not occasion much additional expense. Why not consider fire protection just as much a primary necessity for building as the block-signal system is for railway construction? Is there much difference in aiding a man's death by fire and his death in a railway accident? Why consider it more legitimate to spoil your neighbour's property by fire than to steal it? Bad construction means a risk to one's neighbour's life and property as well as to one's own."

I cannot here specially refer to the risks in theatres and assembly halls, which, to my mind, require separate legislation; I simply speak of factories, offices, business premises, hotels, and tenement houses. In no case should any inmate of a building be more than 60ft. away from a staircase, and preferably there should be two

STAIRCASES

at his disposal, in the event of one being blocked. Generally, attention is only given to the construction of staircases; but it must be pointed out that their ventilation is equally important. Smoke is even a greater danger than fire, and may hamper the helpers terribly. The possibility of opening a window has saved many a life. As far as the protection of pro-

erty is concerned, the prevention of outbreaks can be influenced by the careful construction of flues, hearths, stoves, and in certain classes of buildings by the construction of floors and ceilings, the arrangement of sky-lights, shutters, and lightning conductors. Then comes the prevention of the fire spreading, first, by the division of risks; secondly, by the

MATERIALS USED IN CONSTRUCTION.

When I speak of the division of risks, the legislator's first ambition must be to prevent a fire in one house spreading to another, and a stranger's property, so to say, being endangered. This is quite possible, given good party walls carried well over the roof to a height regulated by the nature of the risk, the arrangement of shutters to windows where necessary, or the use of fire-resisting glass; again, a thoroughly good roof—or, still better, a fire-resisting attic floor—can do much.

Take a drawing-room in an ordinary well-built house. If the joists are strong and the boards grooved, if some light plugging be used and the plastering properly done, if the doors are made well-fitting and fairly strong, a very considerable amount of furniture and fittings can remain well alight for half-an-hour before there is a spread. In a warehouse or factory 'risk' the same holds good. With well-built wooden floors, thickly plugged, and the ceilings perhaps run on wire netting instead of on laths, with ordinary double-ledged doors safely hung, at the most, perhaps, lined with sheet-iron on asbestos cloth, a very stiff blaze can be imprisoned for an hour. The general mistake of using

EXPENSIVE IRON AND CONCRETE CONSTRUCTION

is its aptitude to allow some breach being made through which the fire spreads. The iron door bends, and so does girder work. Then, again, directly a fire has obtained a hold, the composite floors are much too dangerous for the firemen to work on or under. The men cannot get near enough to the actual seat of the fire. Further, there is the extra danger of a stream of water touching hot iron, or the falling of a weight causing a general collapse, and, after the fire has been extinguished, the ironwork is generally so damaged that it requires entire renewal, and the brickwork is probably so strained and bulged that the re-erection has to be commenced from the footings. The simpler forms of construction are generally the more satisfactory, and I should mostly advise it as an architect. The few iron and concrete floors, for instance, which will stand severe strains, are, to my mind, too expensive to allow their introduction for fire protection alone, and, when I speak of their cost, it must be remembered that it is not only the expense of the floors which has to be considered, but also the extra outlay for stronger supports and foundations. By-the-bye, when speaking of the separation of minor 'risks,' the

DANGEROUS LIFT WELLS, SKYLIGHTS, AND SHAFT OPENINGS

should not be forgotten. The latter should be as small as possible, well armed with shutters, the skylights should again have fire-resisting glass, and the lift not only vertical doors, but also horizontal flaps, which would cut up the well into sections. Divisions of 'risks,' common sense construction, and proper staircase accommodation, are really all that fire protection requires, and, where the special Building Act clauses have been kept within the lines I have indicated, there has been little friction and discontent. It is only when, to quote an instance which I have known, a tenement is required to have a large passageway, through which a fire-engine could gallop into a courtyard, that the property owner very rightly considers himself

HARASSED BY PROTECTIVE MEASURES.

As to the fire survey regulations, they should mainly prevent the actual outbreak of fire. In certain classes of risks fire survey can also increase the personal safety of the inmates, and the possibility of a fire spreading may be lessened. The provision of fire-escapes or ladders, and a regular inspection of their efficiency, will do much.

Professional Items.

ABERDEEN.—Steps are now in progress for the restoration of St. Mary's Chapel, under the East Parish Church—remarkable as one of the two pre-Reformation ecclesiastical buildings in Aberdeen, Greyfriars Parish Church being the other. Portions of the plaster on the walls have been broken away, revealing the remarkably interesting carved corbels from which the stone ribs of the groined ceiling rise. At a meeting of the Ecclesiological Society the Rev. Dr. Cooper drew attention to the commencement that had been made with the work. He mentioned that the several committees charged with the restoration would be called together at an early date, that plans of the proposed restoration, now that the features of the old work were coming into view, were being prepared, and would be submitted without delay to the Town Council for its approval. He thought the work of restoration would probably be in full swing by the New Year.

BLYTH.—The large new graving dock—one of the largest in the kingdom—which has been constructed on the premises of the Blyth Dry Dock Company, Limited, was opened the other day. The dock itself, according to the description officially supplied, is 480ft. in length, width at cope 89ft., width at entrance 61ft., depth of water on sill at high water 22½ft., and the depth from cope to floor 31ft. 3in. A large conduit to convey the sewage and water, 730ft. long and 5½ft. diameter, partly constructed of brick and concrete and partly of steel tubes, had first to be made along the south side of the new dock, the dock wall being afterwards built round it. An extensive coffer-dam had to be constructed to keep back the river water during the excavations and concreting inside. The dock walls and floors are composed entirely of Portland cement concrete. The engine-room is below the surface level, and is 42ft. long by 33ft. 6in. wide by 23ft. deep, and is situated between the old and the new docks; the walls and floors are also built of cement concrete. The pumping machinery has been supplied by Messrs. Gwynne and Co., engineers, London. There is also one 10in. centrifugal pump for drainage, supplied by Messrs. Tangyes, Limited, Birmingham. The gates are built entirely of steel with greenheart mitre-posts, quoins and sill pieces are hung from the sides, and are held by strong anchor bolts built into the entrance walls. The gates have been built by the Brandon Bridge Building Co., Motherwell. The engineers for the work were Messrs. J. W. Sandeman and Moncrieff, Newcastle, the resident engineer being Mr. Donald Macdonald. The contractor was Mr. D. N. Brims, Newcastle.

BRIGHTON.—A school-chapel, representing a small portion of the original plans of a new Baptist chapel erected by Mr. G. Baines, was opened a short time ago. Recently a further and most important step in advance was taken, in the laying of the memorial stones of the church itself. The church will consist of nave, aisles, and transept, and its interior of flint with terra-cotta dressing will have a very striking appearance. The length of the church will be 80ft., and its width 49ft. in the nave and 53ft. in the transept. The interior also will be very handsome, the clerestory being supported by a series of Gothic pillars of polished marble, while the lofty windows will be filled in with cathedral glass, and all the woodwork will be of the finest pitch pine. The cost of the site and of the school-chapel was about £2000, and work to the amount of over £4000 remains to be done, making a total of £6000, towards which £3000 has been promised or paid.

CARDIFF.—Under the will of the late Colonel Page, a stained glass east window has been placed in Canton Church, Cardiff. The order was given to Mr. Edward Frampton, A.R.A. The subject of the window, which consists of five lights, is the Ascension of our Lord, and

the style and manner are those of the fifteenth century, with perpendicular canopies, and bases in silvery white glass, with ruby backgrounds. In the five lights are shown the disciples of our Lord, gazing upward in various attitudes of astonishment and awe at the ascending Christ. In the centre light St. Peter and St. John are kneeling, and two angels are appearing to the disciples, with the saying on a scroll, "Ye men of Galilee," &c. The background of the lights is a varied blue, richly diapered, and the Apostles are represented in low tone blues, diversified with much white, which is diapered with golden patterns and borders. There is a large amount of foliage, shown in beautiful, varied tints of green, which breaks up the background. The figure of our Lord in the large central piece of tracery is very stately. There are angels bearing the crown and palm of glory, and the sacred monograms, I.H.S. and A.O. (Alpha and Omega), are worked in. Altogether, the window is beautifully designed and constructed.

The architect's report upon the cost of renovating the infants' block at the Workhouse states that the building was in very bad repair, and needed renovating from top to bottom. The least sum which could in justice be spent was £1419. The Building Committee have decided that it would be better to build an entirely new building, and further decided that the new buildings should be erected at Ely.

DUBLIN.—The interior of the Cathedral, Marlborough Street, is undergoing a process of restoration and improvement. The stately Doric columns have been carefully repainted, and a beautiful new altar is to be unveiled. Six new windows—three on each aisle—have been substituted in place of the previously existing unsightly ones. The new windows have been designed after a fashion eminently suited for the purpose and place which they fill. They are in white tinted glass, with ruby key-border, in strict harmony with the architectural character of the church. As a medium for ventilation they are perfect in construction, and by the simplest method air can be admitted or excluded as may be desired. The glass and wood work has been supplied by Messrs. William Martin and Son, Stephen's Green, the iron frames by Mr. Loughlin Brothers, Brunswick Street, whilst the design is from the hands of Mr. Ashlin.

DULWICH.—The Lord Chancellor has opened in Woodward's Road, Dulwich, a new free library, given to the parish of Camberwell by Mr. Passmore Edwards. The building, though not excessively ornamental without, is light, airy, spacious, and cheerful within. It has cost £5800, of which Mr. Passmore Edwards pays £5000 and the vestry the rest. The site is a gift from the Governors of Dulwich College. Camberwell, with a population of 275,000, has now a central free library and four branches.

DUNDALK.—A new High Altar has just been erected in the Dominican Chapel, St. Malachy's, at a cost of £1300. The altar is a magnificent specimen of ecclesiastical art. The general material is white Sicilian marble. The portion under the altar table is divided into three panels, filled with groups of mosaic representing the sacrifices of Abel, Melchisedech, and Abraham, separated by octagonal shafts of Sienna marble on richly moulded bases, and having foliated capitals supporting a moulded cornice and table of 10ft. in length. The Super Altar consists of candle benches with red foreign marble risers, over which are panels of mosaic with floral ornaments. The tabernacle door is of richly embossed brass work, with clusters of columns of Sienna marble supporting a very ornamentally carved and mounted arch. The rearedos consists of a range of arched canopies over groups of the "Coronation" and "Ascension" in mosaic. The centre of the altar over the tabernacle is occupied by the remonstrance throne, which is composed of Sicilian and onyx marbles. At each side rise panels of sculptured angels in adoration, over which is a groined and gabled canopy of octagonal shape, surmounted by a

spire which rises to a height of about 27ft. The marble work has been executed by Mr. George Smyth, sculptor, Dublin, from the designs and plans of Mr. G. C. Ashlin, R.H.A., Dublin.

HOLYHEAD.—At St. Cybi's Church, Holyhead, the dedication of a south chancel aisle built in memory of the Hon. William Owen Stanley and Mrs. Stanley of Penrhos, took place within the past few days. The church is of great antiquity, and occupies the site of a monastery which was founded by St. Cybi in the fourth century. It was erected in 650 A.D., the body of the church being rebuilt in the time of Henry VII. The east window of the church belongs to the time of Edward II. or Edward III. The church has been restored in recent years, and the restoration committee retained all the architectural features of the time of Henry III. Sir Gilbert Scott estimated the cost of the restoration at £5000, and the late Hon. William Owen Stanley contributed £3000. Subsequently it was found that the oak would have to be entirely renewed, and Mr. Stanley contributed another £1000 towards this improvement.

IBROX.—A large addition has been made to the Ibrox United Presbyterian Church. Accommodation is provided for about 250 additional sittings by adding transepts to the east and west sides of the church and a large chancel to the north, in which are placed the choir seats, and a double manual organ, wrought by hydraulic power. The transepts are divided from the nave of the church by Early English Gothic arches, elaborately moulded, and three light windows filled in with flamboyant tracery and glazed with cathedral-tinted glass of antique design. The roofs are treated with hammer beam couples, and the spandrels and apex filled in with carved tracery of ornate design. The chancel is divided from the nave by a richly-moulded arch springing from clustered columns, having moulded bases and capitals, resting on carved and moulded brackets. A handsome octagonal pulpit of wainscot oak has been placed on the east side of the chancel, having carved panels and string course and buttresses, resting on a corbelled pedestal, with fret rail of wainscot oak. In front of the organ are choir seats, having ornate carved and moulded haffits, with pillars and bases, richly moulded in wainscot oak. There has also been added a new communion table and chair, and a baptismal font, all in wainscot oak. The whole work has been carried out from plans prepared by Messrs. Bruce and Hay, architects, 261, West George Street, and the contractors for the various works were:—Mason work, Mr. Robert Murdoch; wright work, Messrs. Allen and Baxter; plumber work, Mr. C. Johnstone; slater work, Messrs. Hamilton and Co.; plaster work, Messrs. Alex. Calder and Son; heating, Messrs. James Cormack and Sons; painter work, Messrs. Charles Carlton and Son; and Mr. John B. Kerr, clerk of works.

LANGHOLM.—The Dumfries and Galloway Antiquarian Society has concluded a week's excavations at Raeburnfoot, in the high-lying pastoral district of Eskdalemuir, about fourteen miles from Langholm, and has thoroughly confirmed a report that there was a Roman camp there. The Society dug down about 4ft., and discovered various small articles, and also a well-defined road. Mr. Barbour, architect, Dumfries, superintended the work.

LIVERPOOL.—Recently some interesting discoveries connected with the past history of Liverpool have been made during the excavations which have been going on in the lower parts of the city. The latest have been made in Tithebarn Street, owing to the laying of the underground telephone wires, where some hollowed-out trunks of trees, supposed to be water-pipes, have been unearthed. The "pipes" are said to have been laid about 100 years ago, and are trimmed at the ends to fit into each other socket fashion, and although they have been so long underground, they are in a wonderful state of preservation.

LOWER BEBINGTON.—Some time ago the Lower Bebington District Council invited designs for a proposed new sewerage scheme, involving the diversion of the various outfalls now draining into the Bromborough Pool, offering premiums of £50, £35, and £20 for the three best schemes. The award of the assessor (Mr. H. P. Boulnois, M.Inst.C.E.) has been made, and the premiums have been awarded in the following order:—(1) Messrs. Beloe and Priest, Liverpool; (2) Mr. H. Bertram Nichols, Birmingham; and (3) Messrs. Goodison, Atkinson, and Ford, Liverpool.

OXFORD.—The court of the Drapers' Company has approved the plans of a new building at Oxford, which will be the future home of the Ratcliffe Library, if the authorities at Oxford accept them. The cost of the new structure will be £18,500. The Ratcliffe Library was founded by Dr. Ratcliffe considerably over a century ago, but the space it now occupies will be absorbed by the extension of the medical school. The Drapers' Company, in the interests of education, has undertaken to erect the new building, the plans of which have been prepared for the company by Mr. T. G. Jackson, R.A.

RIPON.—The foundation-stone has been laid of the new Infirmary which is in course of erection at the Ripon Union Workhouse. The new building is estimated to cost £2650. It has a very admirable position on the east side of the existing buildings, with a good view in the direction of Ripon railway station and the valley of the Ure. The various arrangements have been designed on the most approved scientific principles, and the plans well drawn by Mr. F. H. Hargrave, architect, of Ripon. Including provision for nurses in the centre of the building, there will be accommodation on the ground and second floors for about forty persons. In addition to the sick wards for men and women there are day and duty rooms, foal wards, lying-in ward, with separate bath-rooms and lavatories in each section. There will also be hot water apparatus for heating the building. Local bricks are used in the construction of the building, with pressed bricks for strings, and Killinghall and Pateley stone for quoins, sills, &c. The contractors are Messrs. A. Trees, stone brickwork, &c.; H. Boddy, joiners' work; W. E. Dixon, plumbing and smith's work; J. Lowley, painting.

RUMBURGH.—The quaint old monastic church of Rumburgh has just been restored. A few months ago the appearance it presented was by no means that of an ecclesiastical building; except for the gravestones around it no one could scarcely tell that it was a church. But now it is very different: walls uplifted to their original height, windows refilled with good tracery, a lead roof, wood block floor, and solid carved oak seats, have transformed it into a very handsome building.

ST. ANNE'S-ON-THE-SEA.—A new convalescent home has been recently erected at St. Anne's-on-the-Sea. The new home, which has been constructed from plans prepared by Mr. Alfred Steinthal, architect, is situated about a mile from St. Anne's railway station on the high road to Blackpool. It is amply provided with ground for future extensions, and possesses an uninterrupted view of the sea, although standing some sixty or eighty yards from the coast line. The home has accommodation for twenty-five patients, as well as for matron, two nurses, and two domestic servants.

SANDAL.—A neat and appropriate monument will shortly be erected at Sandal to indicate the spot where it is said Richard, Duke of York, fell at the Battle of Wakefield in connection with the Wars of the Roses. It is about 15ft. high, of carved Bolton Wood stone, executed from designs of Mr. Hawksley, of London, by Mr. Thresh, of St. John's, Wakefield, at a cost of about £130. The monument represents the Duke clad in armour leaning on a sheathed sword.

SHEFFIELD.—The memorial stone of the new buildings in Gleadless Road, for the Ecclesall

Industrial and Provident Society Limited, has been laid. The buildings, which are estimated to cost £3600, are being erected from the plans of Messrs. Hall and Fenton, architects. They comprise a large basement, lined with white bricks, 7ft. by 4ft., special cellars for storage purposes, and the usual separate departments for the numerous businesses of the Society. A manager's house is to be provided, and the building will be fitted with a hydraulic lift. Mr. J. Lenthal, of Attercliffe, is the contractor, and the ironwork is supplied by Mr. Charles Ross.

SOUTH SCARLE.—The church at South Scarle is in a deplorable condition, and it is proposed to make safe and repair the falling tower, replace the lost north aisle, reseal the church (preserving the old oak benches), restore the old rood screen, if possible, and repair the roof. The estimate of the architect, Mr. J. N. Cowper, was £950. The contract for the work has been let to Messrs. Sherwin, of Boston, but they will not commence until the spring.

SWANSEA.—The foundation stone of the Victoria Home for Nurses, which is being added to the Swansea Hospital, has just been laid. The new building is being built at the rear of an administrative block, and will be connected with same by a corridor. In the basement it is proposed to provide the heating apparatus. On the ground floor, accommodation is provided for eight nurses, with a sitting-room adjoining, and with the usual lavatories and bath-rooms. On the first floor, accommodation is provided for ten nurses, with the usual sanitary arrangements. This new building will in every way be in character with the general style of the Hospital. Overlooking the lawn will be a verandah, and a small tower at the corner of the building. Everything throughout the building will be of the latest improvements, special care being taken with every detail. The plans for this work have been prepared by Messrs. Wilson and Moxham, architects, who are now also carrying out the new operating theatre at the Hospital. Mr. Thomas Davies, of Francis Yard, St. Helen's Avenue, is the contractor.

TARLETON.—A new school has been erected at Tarleton. It is built of stone, and in its architectural features harmonises with the neighbouring beautiful church in the decorated Gothic style. Both structures are the designs of Mr. C. A. Basset Smith, architect, of London. The school, which is destined to accommodate over 230 scholars, is built in accordance with the latest educational requirements, and is provided with two playgrounds. The largest room is floored with wood blocks, and is furnished with a sliding screen, by the use of which one portion of the room can be partitioned off.

TUNBRIDGE WELLS.—The memorial to the late Canon Hoare, in St. John's Road, has been formally dedicated. It is erected at the junction of the St. John's and Culverton Park Roads. The structure is purely Gothic in design, and not unlike the spire of a church at the top. It rests on a granite plinth of dark pennant stone, and on the front of the memorial is inlaid a medallion representation of the well-remembered face of the late vicar of Holy Trinity. Below is a marble tablet with carved border, with parapet and band of tracery. The four angles of the monument carry figures of the evangelists on pedestals. The total height of the pretty design, which cost nearly £1000, is 40ft., and Mr. Oldrid Scott, F.S.A. (son of the late Gilbert Scott), was the architect. The erection has been the work of local builders, Messrs. Strange and Son.

WALLSEND.—There has been unveiled, in Wallsend Parish Church, a beautiful stained glass window, consisting of three lights, in each of which a saint is depicted. In the first the saint is St. Aidan, who is represented with a stag at his feet; the centre light is St. Bede, with the Gospel of St. John in his hand; and the third light shows St. Cuthbert, with a crowned head in his hand. The window has been designed by Messrs. James Bacon and Co.

THE WINTER SESSION.

"INLAY."

At a meeting of the Edinburgh Architectural Society, held within the past few days—the president, Mr. J. A. Williamson, in the chair—Mr. J. F. Matthew delivered a paper on "Inlay," which gave a historical sketch of the typical methods adopted in the different countries, Persian, Indian, Italian, Spanish, Dutch, French, etc. He described the origin, progress, and decadence of marquetry, as also the methods of executing the work. The lecture was illustrated by a large collection of woods, examples of inlay and veneering, photographs, and drawings.

EGYPTIAN ANTIQUITIES.

The second meeting of the session of the British Archaeological Association was held at the rooms in Sackville Street, Piccadilly, Mr. C. H. Compton in the chair. Mr. Earle Way brought for exhibition some antiquities from Egypt, consisting of two bronze figures representing Osiris and Isis and Horns, of about 700 B.C., also a specimen of mummy cloth from a mummy recently unrolled, and two ancient bronze sheep-bells. Mr. Way also submitted some Roman coins of Carausius, Constantius, and Constantine (found lately in excavating for a main sewer in Union Road, Southwark), and a shilling of Charles I. The paper of the evening was by Mr. Thos. Blashill, entitled "Some Illustrations of Domestic Spinning." Mr. Blashill said that spinning, except in its modern revival, was a lost art. Implements used in spinning were seen in the most ancient Egyptian sculptures, and spindles with the whorl attached were found in Egyptian excavations.

A SCHOOL OF ART.

At a meeting of the Glasgow Architectural Association—the president, Mr. Wm. T. Conner, in the chair—Mr. F. H. Newberry, head master, Glasgow School of Art, delivered a lecture entitled "A School of Art." The object of a School of Art, he said, should be to teach craftsmen how to work in any material, and to engender community of thought and criticism between the different branches of study; but everyone must have an elementary knowledge of craftsmanship. As affecting architects, he considered construction and design should be relegated to the office, and the Art part only studied in school. On the important subject of lighting, the lecturer said that on account of its steadiness the N. light was preferable for beginners, but S. light also was often required as bringing out a variety of colour. Regarding windows, he laid down the axiom "one room one window," and that in one plain, i.e., no combination of window and skylight, as thus avoiding cross or reflected lights. Mr. Newberry then took up the different rooms in detail, and specifically their particular requirements.—At the close, on the motion of Mr. P. S. Hill, a hearty vote of thanks was passed.

PETERBOROUGH AGAIN!

At the London Institution, a few days ago, Mr. Arnold Mitchell lectured on "Peterborough Cathedral." He contended that it had been absolutely necessary to restore the exquisite west front. The two piers, supporting a wall from 4ft. to 5ft. thick, were leaning forward—one being 2ft. 5½ in. out of the perpendicular. This west front had been added to the original building, and Mr. Irving had discovered that it had replaced a structure of which the two existing piers formed part. When the present front was constructed those piers were strengthened in their substance, but not in their foundation. Hence the serious "fall." The wall above had "stretched," i.e., openings had occurred between the stones. Through these openings, as the necessary "pointing" was omitted, wind, rain, and frost had found their way, reducing much of the inner masonry to rotteness and dust. No doubt the little central porch was the mediæval way of arresting the tendency of the front to fall forward. Two years ago a great gale came, and several

pinnacles were blown down. Then the Dean and Chapter sought expert opinion, which showed that the two side gables must be taken down and rebuilt. A great outcry was raised, but the course recommended had to be followed. If the outcry had not been raised, and if sufficient public support had been forthcoming, a much more drastic alteration would have been undertaken, and some thought that more drastic alteration should have been undertaken. The three gables and the tops of the arches would have been removed, and then, after slices had been taken from the backs of the piers, they would have been restored to the perpendicular by means of screw-jacks. If that were done we could hand on the front of Peterborough Cathedral for 700 years to come. Whether the present restoration would be final, he could not say. The disintegrated condition of the inner masonry (evidence of which had more particularly been forthcoming since the present works were in hand) rendered impossible the project, suggested by opponents, of replacing the inside masonry without disturbing the "skin." One gable had already been taken down and rebuilt. The 2006 stones were numbered, and 1836 of them were put back in exactly the same places that they occupied before. Only 170 had to be discarded, new ones being substituted.

Views and Reviews.

HOUSE DRAINAGE.

Of good books upon the subject of domestic sanitation there can scarcely be too many. The subject is one upon which our knowledge is extending, and it is necessary that the very latest information should be periodically put into book form, and laid before the public. For this reason we welcome the appearance of a new book by Mr. Spinks, which, while written in so easy a manner that anyone could understand it, is full of valuable information. Perhaps the most important chapters are those on portions of the subject which are but little dealt with in other works on house drainage, particularly the one upon "Setting Out and Construction," giving the proper method of keeping the level book and records of the laying of pipe drains, and another upon the disposal of sewage from isolated houses, in which all the most recent systems are described concisely and yet clearly. At the same time it seems strange that Fig. 13 should have found a place in the book at all. Elsewhere throughout the book the necessity of laying drain pipes in straight lines is consistently insisted upon, but this diagram shows all the branch drains laid to curves and tortuous windings such as no modern sanitary inspector who knew his duties would be likely to pass. A few more detailed directions as to the method of testing drains would be valuable, and the arrangement shown for the school in Fig. 18 is by no means universally approved. It is a little difficult to understand whether the author advocates a separate system of main drainage for surface water, but if so, he can scarcely have had experience of the effect in practical work, as removing uselessly that storm water which is so valuable for flushing purposes. We should have thought that the bend shown in Fig. 61 would have been liable to choke at the corners, but do not know that it has been put to practical test. The joint between lead and stoneware is at any rate wrongly shown, and for this there is little excuse now that the brass sleeve is universally adopted. The trap, too, at foot of soil pipe, and open grid directly over, is an exploded fad. Needless to say, we should not take so much trouble to point out the detailed defects of an indifferent work. The book is a good one, and we hope that it will serve its purpose and help forward the improvement which is now going on in house drainage.

"House Drainage Manual." By Wm. Spinks. A Guide to the Design and Construction of Systems of Drainage and Sewage Disposal from Houses. (Biggs and Co., Salisbury Court, Fleet Street, E.C. November, 1897.)

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

COTTAGE BUILDING.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you tell me if I can procure any publications containing drawings of cottages or lodges costing from £200 to £300; or if any have appeared in your paper? Perhaps you can refer me to the numbers.—Yours faithfully,

H. W. F.

A series of articles on the planning of small houses, by Mr. H. V. Lanchester, has recently been completed in the BUILDERS' JOURNAL. They contain much useful information, and no doubt you would find them helpful in cottage building. "A Terrace House" was dealt with in No. 105; "Terrace Houses" in No. 106; "Pair of Cottages" and "Semi-Detached Houses" in Nos. 109, 115, 119, and 124. In addition designs of cottages have occasionally appeared in the pages of The Architectural Review.

THE GROWTH OF TREES.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I should like to know whether you could explain to me, through your Enquiry Column, the manner in which a tree grows. The points I want cleared up are: (1) How are the cells in the new wood formed? (2) How does the sap travel?—up in the spring and down the tree in the autumn, or always up the tree? (3) How does a tree add to its height, and also to the length of the branches? By inserting an answer to this enquiry, you will greatly help others besides myself, who at present are undecided on these questions, as the text-books on the subject do not agree. Thanking you in anticipation, I am, yours truly,

November 25th, 1897.

LIGNUM.

A full answer to your queries would occupy a whole number of the Journal. The questions are still in the debatable stage, which accounts for the differences you mention in the text-books. We will, however, give a brief outline of the processes as generally accepted by the later physiologists. The cellular tissue of the wood in exogenous trees is formed and increased by the multiplication of cells around the pith, itself a mass of large thin walled cells. This multiplication is effected by internal sub-division of each cell into others precisely similar by the action of the protoplasm contained in the cell, which is fed by accretion from the sap and leaves. The cells increase vertically as well as laterally, and by this means the stem and branches are increased in length, simultaneously with the increase of diameter. Strictly speaking, that which is popularly known as sap always moves in an upward direction, from the roots towards the leaves; it is then a thin watery fluid charged with mineral salts, to be changed, when it reaches the surfaces of the leaves, by the action of air, sunlight, &c., to starchy and saccharine matter, for the food of the protoplasm, that mysterious entity that comprises the life of the tree; this travels downwards during the "fall" or autumn, by way of the exterior cambium layer, and the more solid portions pass to the interior through the horizontal strata of cells called the medullary rays. During the winter an apparent rest takes place in the formation of cells, and the movement of sap; but whether this is entire or

only comparative, is not known with certainty. Further information upon these matters should be sought in some standard work on botany, such as Professor Asa Gray's (Macmillan and Company).

CUBIC AIR SPACE FOR COWS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—The Local Government Board have approved of certain model regulations as to air space in cowhouses, 800 cubic feet being allotted to each cow. In measuring the cubic contents of a cowhouse, how should the roof space be treated? Should the whole space inside from eaves to ridge be measured (i.e., width at eaves by half height from eaves to ridge to get area), or should only the air space to a height of, say, 12ft. above floor be measured? Twelve feet is usually considered a maximum of useful height in living rooms. The question is, which method would an inspector under the Dairies and Cowsheds Order use? The point is important, as it is quite possible that a cowhouse measured by the second method would be condemned as not containing sufficient air space, but if measured by the first method it would do so. For example, a cowhouse with which I am acquainted measures 40ft. long, 17ft. wide, 9ft. high to eaves, roof one-third span, say 6ft. rise for ten cows. If all air space to ridge is measured, each cow has 816 cubic feet, but if air space is measured to 3ft. above eaves (i.e., 12ft. from floor) each cow has 754 cubic feet.—Yours faithfully, W. J.

In the absence of special mention to the contrary in the regulations, the whole air space would be measured, unless this involved an absurdity, as in the case of very low eaves and a high-pitched roof, when an inspector would, doubtless, be justified in using his own discretion.

TECHNICAL WORKS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you kindly inform me, through the medium of your Enquiry Department, of the best books (not going too much into detail) to gain a rudimentary knowledge from of: (1) The arrangement for and carrying out of small water supply schemes; (2) The arrangement for and carrying out of small gas works; (3) The arrangement for and carrying out of small sewage disposal works? From what source can information be obtained as to the planning and fitting up of slaughter-houses, and the lairage, &c., that is required in conjunction?—Yours faithfully,

"WAITING."

We do not know of any books devoted to small designs in the engineering schemes mentioned, but suggest that you consult some standard works on the respective subjects. Below are given the names of a few books which will answer your purpose: 1. "Water Engineering," by Chas. Slagg, C.E.; Crosby, Lockwood, and Son; 7s. 6d. 2. "Construction of Gasworks," by R. Marsh, C.E.; Weale's Series; Crosby, Lockwood, and Son; 5s. 6d. 3. "Sanitary Engineering," by Baldwin Latham, C.E.; E. and F. N. Spon; 30s. "Sewage Disposal Works," by W. Santo Crimp, C.E.; W. Griffen and Co.; 30s. "Drainage Work," by W. H. Maxwell; St. Bride's Press; 1s. 6d. There is no work on slaughter-houses, but Bulnois' "Municipal and Sanitary Engineer's Handbook" has a chapter on the subject, which deals with all the essential points; E. and F. N. Spon; 15s. You could obtain second-hand copies of the expensive books.

BISHOPSGATE CHAPEL, erected in 1837 for a church originally founded in 1700, has just been renovated at a cost of nearly £1000.

THE American slate industry is to receive help from English money, a Company of English capitalists having been formed to develop the trade abroad. Some members of the Company are now visiting the slate producing region of Pennsylvania in furtherance of the project.

Correspondence.

FIRE PREVENTION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I have the pleasure of handing you some particulars of the British Fire Prevention Committee, the idea for which originated in connection with the Paris Charity Bazaar fire, and the arrangement of a British representation at the impending International Fire Congress to be held in the French Capital. The encouragement the proposals of the executive received led to an extension of the Committee's programme, when the general question of fire prevention in this country was given precedence to any special question of safety at public entertainments or the representation at Paris. Thanks to the assistance of several of the members, the work could be quietly but surely mapped out, but had it not been for the serious conflagration in the City, some weeks would yet have elapsed before venturing to call your attention to the Committee's purposes.

As it is, I, however, consider the recent fire in the City a sufficient reason to inform you that active steps are being taken to deal with the question of fire protection from a more serious view than has hitherto been the case, and primarily from the aspect of fire prevention. There is no doubt that the majority of our fires could be prevented, and their extent could certainly nearly always be limited with the aid of better planning and construction, no matter how excellent and efficient the fire service is. It is quite unnecessary that we should have so many outbreaks occurring, and when they occur that we should handicap our gallant firemen in extinguishing them as we do at present. The question of fire prevention has so far been much neglected.

The objects of the Committee have been made known, but I should perhaps add that one of the principal ideas in forming the Committee was to avoid any one of the many conflicting interests being treated in a one-sided manner. This is the reason why the various vested, commercial, as well as the professional and official interests, will be represented on the Committee. The difficulty of obtaining independent opinions regarding measures, methods, or appliances for minimising fire risks, is also one of the reasons for the formation on its present lines.

Perhaps I should add that the original members already number nearly 200; that the publications of the Committee have commenced, among those in preparation being papers by the architect to the L.C.C. (Mr. Blashill), Mr. Darbyshire, F.S.A., of Manchester, Mr. Farrow, F.R.I.B.A., and Mr. Max Clarke, as well as several summaries of foreign legislation and parliamentary proceedings and extracts from the English, Continental, and American literature on the subject.

Again emphasising that this body is primarily intended for taking up the question of fire prevention as distinct from its extinction, and thinking that if the architectural circles were really to give their serious attention to the question, fire losses might materially be reduced.—I am, dear Sir, yours very truly,

EDWIN O. SACHS,

Chairman of the Executive.

Waterloo Place, Pall Mall, S.W.

Notice to London and Provincial Readers.

The Editor of the "Builders' Journal"

will at all times be pleased to receive and consider articles of a professional or technical character suitable for these pages. Papers read before Architectural bodies will also, if forwarded, receive careful consideration.

Trade and Craft.

ASPINALL'S "WAPICTI."

The name of "Aspinall" is quite a household word, and its association with the famous firm's latest decorative material, "Wapicti," promises to become just as well known as with the firm's enamel. Anything of real decorative merit which tends to the beautifying of our homes and public buildings, either internally or externally, deserves careful attention on the part of those in whose hands the beauty—or otherwise—of our buildings lay; and it is a matter of satisfaction that here, as in all Nature, we have the "survival of the fittest." Aspinall's, we doubt not, owe their popularity to this simple fact, and their "Wapicti" is the latest proof of it. Its artistic merits having been recognised, it has met with a welcome at once cordial and hearty. We have lately had the pleasure of looking at several jobs which have been done with this preparation. Amongst others, we may specially refer to 103, Cannon Street, where the whole of the outside has been done in a Portland cement colour; the effect is in every way worthy of the decorators and manufacturers. Messrs. Aspinall have a special method of preparing the material for outside work, which renders it proof against the elements. Again, at the Royal Albert Hall, "Wapicti" has been used for the re-decoration of the bays, and the result is in every way satisfactory. In this case, "Wapicti" is employed for the filling, and the firm's special decorator's enamel for the dado and skirting. As an artistic and effective wall decorator, "Wapicti" stands in the fore-front, and combining the properties of an anti-septic agent and strong disinfectant, it is the desideratum of the decorating trade. For the walls of mansions, hospitals, schools, and all large surfaces requiring to be neatly and aesthetically treated, it is especially suitable, and may be used with eminently satisfactory results. "Wapicti" can be manufactured in any tint, and is adapted for application to plaster, stucco, brick, stone, cement, wood, &c. On exterior work, it dries with an impermeable surface; the general effect is superior to that of flatted paint, and besides, it is more economical; it is about one-third cheaper. The best testimonial to "Wapicti" lies, we think, in its own application.

SANITARY BYE-LAWS AT BIRMINGHAM.

At the Birmingham Police Court recently, Stephen Blundell, builder and contractor, Blundell Road, Sparkbrook, was summoned by the Corporation for erecting houses in Charles Road, Small Heath, and neglecting and refusing to provide suitable drain-traps in the house connections with the drains; and, further, for refusing to provide at least two untrapped openings for the purpose of securing sufficient ventilation in each house, as required by the bye-laws. On January 16th last defendant submitted, by his architect (Mr. Hamblin), plans for the erection of certain houses, commencing with the thirty-fifth house in Charles Road, on the west side from Bordesley Green, and on January 19th those plans were disapproved by the Corporation on the ground of certain defects. The plans were again submitted on January 25th, and again on February 1st were disapproved. On that day, or shortly afterwards, an interview took place between the city surveyor and Mr. Hamblin, and the latter made certain alterations which justified the Corporation in approving the plans on February 5th. On February 28th the Corporation received a letter from Mr. Barber, defendant's solicitor, in which he renounced the authority of Mr. Hamblin to make the alterations in question. Mr. Barber sent to the Corporation addenda to the plans indicating the position of the drainage which he thought ought to be approved by the Corporation. On March 2nd those plans were disapproved, but in spite of this the building was commenced on March 9th. On June 6th notice was given that the drains were ready for inspection, and a visit was paid to the property. It was then found that the drainage system as laid down

was not in accordance with the plans approved by the Corporation, but in accordance with the addenda which had been disapproved by the Corporation. On August 5th fresh plans were submitted, and again disapproved; and an interview with the Health Committee failed to bring about an acceptable arrangement. For the defence, Mr. Hamblin, who acted as architect for defendant, said that up to the coming of Mr. Price the Corporation allowed blocks of houses to be drained with one trap. Mr. Price, rightly or wrongly, now insisted upon one trap for each house. Dr. Bostock Hill, also called on behalf of defendant, said that he had inspected the houses, and in his judgment, as at present erected, there was no defect in their sanitary arrangement. The Bench imposed four penalties of 20s. and costs each in respect of two houses.

ANNAN'S ANTI-ACCIDENT APPARATUS.

In these days of lofty buildings, towering blocks of flats, etc., rendered necessary by the limits of building areas, and the cost of ground in our large cities, we look to the genius of the inventor and patentee for the means whereby the safety of those on whom necessity enforces the endangerment of life and limb in the service of others may be assured. The advent of any new patent offering a safeguard against such risks should be hailed with pleasure. We have recently received a specimen of Mr. D. Y. Annan's Patent Anti-Accident apparatus, which appears to us to meet a requirement that has long been wanted. The patentee describes it as eminently suitable to all classes of existing or new windows, and as easily adaptable thereto. Another feature which recommends it is its cheapness. The apparatus is also easily removable, and applied to each window successively as required. The apparatus consists of a pair of hinged flaps of brass or other suitable metal, having two elongated slots on one leaf and one on the other. These are fixed to the inside lining or batten rod by screws. The sash is lifted sufficiently to well clear the inside bead of sill, and screws inserted in the sash opposite the single slots on the hinges into which the heads are passed. The inside bead or batten rod on the opposite side of sash frame to the hinges above mentioned is now cut diagonally across a little above the top of lower sash. The upper portion is then turned, or pivotted by inserting a screw in the centre of same. The lower portion is then fitted with screws at intervals, which are so arranged as to fit into small plates sunk flush into the wood, screwed into the end of lining and so regulated as to engage with the screws by means of the slots in same. Two screws are then inserted in any convenient position to secure the sash cords. The lower sash can then be swung inwards for cleaning. The upper sash is now lowered to the position of the lower sash, so that the top of each is level, screws are then inserted in pairs (one in each sash), and the clip plates (pivotted and slotted) are fitted to the screws and closed. Next cut the parting bead about 9in. from the top of window and fix the knuckle joint provided for the purpose. Secure the lines in similar manner to that described for the lower sash. The two sashes are now fixed together, and can be swung inwards. To refix the parting bead, a plate is inserted in the woodwork behind same, and a screw head fitted to the back of the parting bead, which engages with a slot in the plate. That portion of the parting bead above the knuckle-joint should be nailed to the framing. The invention is really in two distinct portions, viz., that which is usable for all the windows in turn, and comprises the two swinging hinges and the pivotted clips, with the cone-headed screws for same; and that portion which is a fixture for each window, comprising the slotted plates attached to the framing for engaging the parting and inside beads where cut on the right side of the window. For simplicity and efficiency we commend this ingenious apparatus as a distinct improvement on existing methods. The apparatus is procurable from the inventor, Mr. D. Y. Annan, of 42, Barrack Street, Dundee.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BRIGHTON.—For alterations and enlargement of the Queen's Park School, for the Brighton and Preston School Board, U.D. Messrs. Thomas Simpson and Son, surveyors, 16, Ship-street, Brighton:—
W. Brown and Son, £2,614 0 | W. Field and Co., £2,336 0
J. Longley and Co., 2,582 0 | G. R. Lockyer, 2,252 15
C. E. Kemp, 2,481 0 | Lattin & Evershed, 2,238 0
P. Peters and Son, 2,350 0

DEVONPORT.—For the construction of sewers, &c. Mr. John F. Burns, borough surveyor, Municipal Offices, Devonport:—
J. Shaddock, £2,227 | A. Thomas, £1,472
T. Lang and Sons, 1,825 | T. Shaddock, Ply-
mouth, 1,415
H. E. Skinner, 1,735

GREAT AYTON (Yorkshire).—For Great Ayton sewerage and sewage disposal works, for the Stokesley Rural District Council, Yorkshire. Mr. H. W. Taylor, engineer:—
Parker and Sharp, £4,942 | G. Robson, £3,881
Curry and Son, 4,449 | J. Carrick, 3,767
T. Pearson, 4,163 | T. Hunt, 3,760
F. N. Simpson, 4,101 | Cruddas and Son, 3,419
KEIGHLEY.—For the erection of store, Lawkholme-lane, for the Keighley Industrial Co-operative Society, Limited. Mr. John Haggas, architect, North-street, Keighley:—
Masonry.—Henry V. Robinson
Slating.—William Thornton
Plastering.—Joseph King
Plumbing.—J. W. Clough

LONDON.—For rebuilding stables, Nos. 12 and 15, Gower-mews, W.C., for Mr. W. H. Woods. Messrs. Clark and Hutchinson, architects, 28, John-street, Bedford-row, W.C. Quantities supplied:—
Courtney and Fairbairn, £1,717 | Alfred Bush, £1,699
John Anley, 1,714 | H. Burnham & Sons, 1,682
Patman & Fotheringham, 1,710 | William Antill & Co., 1,650

LONDON.—Accepted for alterations to No. 46, Chandos-street, Charing Cross, W.C., for the Directors of the Lyric Stage Academy, Limited. Messrs. Clark and Hutchinson, architects, 28, John-street, Bedford-row, W.C.:—
Tipton, £235
LONDON.—For electric wiring, Guildhall School of Music Extension:—
Vaughan & Brown, £750 0 0 | B. Phipps and Co., £464 0 0
Drake and Gorham, 738 18 0 | C. A. Heddingway, 405 7 6
Wenham & Waters, 579 0 0 | Gulich & Macintyre, 392 4 6
R. Dawson, 507 12 0 | Johnson & Phillips, 357 0 0
Lund Bros., 495 0 0 | Berghie & Young, 342 15 0

LONDON.—For heating, &c., Guildhall School of Music Extension:—
Rossor and Russell, £1,800 | Wenham and Waters, £1,063
Kinnel, 1,150 | Waller and Co., 980
W. J. Fraser and Co., 1,142 | Finch and Co., 797
Haden and Son, 1,076 | W. Smith, Gray & Co., 744

LONDON.—Accepted for erection of semi-detached houses in Sunray-avenue, Denmark Hill, S.E., for Messrs. Richard Ellis and Sons and others. Mr. Edward B. Ellis, architect, 18 and 19, Fenchurch-street, E.C.:—
W. D. Palmer, £5,933
ALDERBURY.—For alterations and repairs at the "Galatea," Albermarle-street, S.E., for the New Westminster Brewery Company. Mr. H. E. Budd, surveyor, 78, Vincent-square, Westminster, S.W.:—
Drew and Cadman, £268 | H. Eames, 135, Hill-
Prestage and Co., 631 | street, Peckham, S.E., £255
King and Son, 610

LONDON.—For additions to printing warehouse, Northumberland-alley, Fenchurch-street, E.C., for Messrs. Smith and Ebbs. Mr. Money Marsden, architect, 40, Great Tower-street, E.C. Quantities by the architect:—
J. Turnbull and Son, £2,260 | John Sparks & Sons, £2,075
John Outhwaite & Son, 2,100

LONDON.—For rebuilding house, High-street, Bromley, E. Messrs. Foulsham and Herbert Riches, joint architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—
J. T. Robey, £724 | Howlett and Sons, £665
S. Salt, 705 | A. J. Sheffield, 650
J. C. Edmunds, 682 | T. Osborn and Sons, 598

LONDON.—For part rebuilding and alterations to "The Seabright Arms" public-house, Hackney, N.E. Messrs. Foulsham and Herbert Riches, joint architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—
F. and F. J. Wood, £1,460 | S. E. Todd and Co., £1,367
S. R. Lamble, 1,458 | G. A. Markham & Son, 1,171
J. Anley, 1,494 | A. Hood, 1,165

LONDON.—For pulling down and rebuilding front portion, and for bar fittings &c., at "The Rose and Crown," Ilford, E. Messrs. Foulsham and Herbert Riches, joint architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—
T. E. Mitchell, £3,138 | J. and H. Cocks, £2,923
W. Shurmer, 2,890 | W. Watson (accepted), 2,870

LONDON.—For new fittings, &c., to shops, High-street, Deptford. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—
Hall Bros., £247 | Spreckley and Co., £275
Calnan and Co., 285 | W. Peck and Co., 232

LONDON.—For new shop front to shop, Chapel-street, Islington, N. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—
G. Lyford, £231 | W. Peck and Co., £117
Spreckley and Co., 216

LONDON.—Accepted for repairs to "The Prince of Wales," Stratford, E. Messrs. Foulsham and Herbert Riches, joint architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—
W. D. Dely, £131 12 0

LONDON.—Accepted for the erection of seven houses, Manor Park, for Mr. G. Cason. Mr. J. Walter Wyles, architect, 17, Finsbury-pavement, E.C., and Manor Park:—
J. W. Thornton, Upton Park, £1,400

LONDON.—Accepted for the erection of factory at Blenheim-road, Upper Holloway:—
A. Heard and Co., £1,728 19

LONDON.—For the erection of new stables at Horney-lane, Bermondsey, for Messrs. E. Ellis and Co.:—
Shepherd, £575 | Ellis Stanley, Guildford, £529

WELLS.—For re-constructing the male and female infants' offices, erecting closets for masters and schoolkeeper, and providing part new drainage scheme, at the London Fields Schools, for the London School Board. Mr. T. J. Bailey, architect:—
J. Wilmott and Sons, £1,772 | G. S. S. Williams and
J. Grover and Sons, 1,710 | Son, £1,359
E. Lawrence and Sons, 1,608 | Johnson and Co., 1,351
Stevens Bros., 1,628 | R. A. Yarbury & Sons, 1,281

RECOMMENDED FOR ACCEPTANCE.

MARLBOROUGH (Wiltshire).—For the erection of County Police Station, for the Standing Joint Committee. Mr. C. S. Adye, County Surveyor, County Offices, Trowbridge:—
Hughes and Weeks, £4,380 0 | Hayward & Wooster, £3,750 0
B. Hillier, 4,040 0 | W. E. Piper, Marl-
Downing & Rudman, 3,900 0 | borough*, 3,598 0
H. Hoskings, 3,890 0 | G. Moors, 3,316 10

PLYMOUTH.—For the erection of poultry, vegetable, fruit, and fish market, &c., being contracts Nos. 8 and 9 of the Plymouth Corporation Markets. Messrs. King and Lister, architects, 8, Princess-square, Plymouth. Quantities by the architects:—
J. Finch, £12,939 | A. R. Lethbridge and
A. W. Coles, 11,062 | Son, £10,519
Matcham and Co., 11,140 | Wm. Trevena, Ply-
mouth*, 10,228
J. Goad and Son, 11,149
P. Blouey, 11,063

PONTEFRAC.—Accepted for workhouse extensions, Pontefract Union, for the Board of Guardians. Messrs. J. Holmes, Greaves, and Co., architects, Leeds, Pontefract, and London:—

New Laundry Buildings.

Excavating, Bricklaying, and Masonry.—
Jackson Bros., Goole, £1,620 0 0
Carpentry and Joinery.—Jackson Bros.,
Goole, 311 0 0
Plumbing and Glazing.—G. Thompson,
Leeds, 90 0 0
Slating.—Jackson Bros., Goole, 109 10 0
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Painting.—H. Butler and Sons, Ponte-
fract, 61 5 6
Hot Water Engineering.—A. Wougill and
Co., Leeds, 51 0 0
Laundry Machinery.—T. Bradford and
Co., Manchester, 927 0 0
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Plastering.—O. Lister, Ilkley, 58 13 8
Painting.—Jackson Bros., Goole, 27 0 0
Hot-water Engineering.—J. King & Co.,
Liverpool, 282 2 0
Ironfoundry and Smithing.—C. Auty and
Sons, Leeds, 21 14 0

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Painting.—Jackson Bros., Goole, 8 19 0
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 F. Fish and Sons ... 12,066 T. Barker ... 10,776
 E. Orton ... 11,838 A. Moss and Sons ... 10,448
 Main, Kendall, and ... A. Faulks, Lough-
 borough (accepted) 10,350
 Main ... 11,850
 OXFORD.—For the erection of a new public-house on the Botley-road, for Messrs. Hanley and Co., brewers, Oxford.

Mr. Herbert Quinton, architect and surveyor, 15, Magdalen-street, Oxford.—
 Wilkins Brothers ... £1,215 T. H. Kingerlee* ... £1,173
 Wyatt and Son ... 1,190 J. Wooldridge ... 1,047
 *Accepted.

PYRFORD.—For the erection of teacher's house, for the School Board. Mr. C. Welch, architect, London-street, Chertsey. Quantities by architect.—
 G. Wells ... £396 0 0 H. G. Nesmyth ... £340
 W. Greenfield ... 372 0 0 R. J. Hunt, Chertsey* ... 330
 G. Christmas ... 349 10 6 *Accepted.
 [Architect's estimate, £325.]

RADSTOCK.—For the erection of bakery, stables, and cottages at Radstock, Somerset, for the Radstock Co-operative and Industrial Society, Limited. Mr. W. F. Bird, M.S.A. architect, Midsomer Norton. Quantities by the architect.—
 H. S. Cook ... £1,914 8 0 Coles Bros ... £1,305 0 0
 Tovey and Tucker 1,735 0 0 (accepted)
 Architect's estimate, £1,661.

ROYTON.—Accepted for the construction of about 900 lineal yards of sewers, &c. (Contract 15), for the Urban District Council. Mr. T. S. McCallum, engineer, 4, Chapel-walks Manchester.—
 Geo. Freeman and Sons, Oldham ... £1,430

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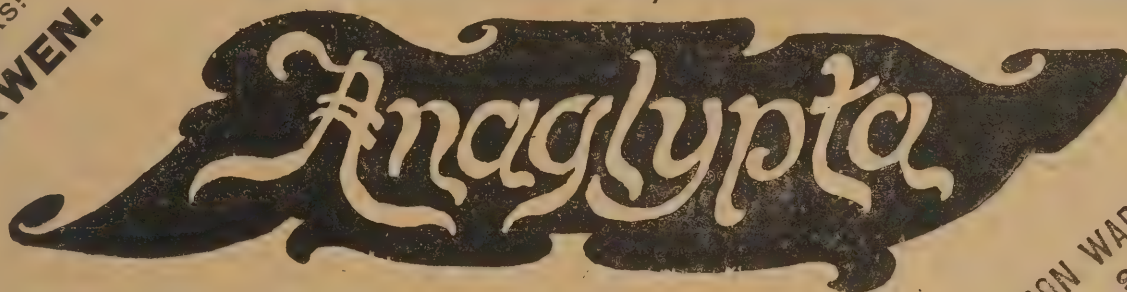
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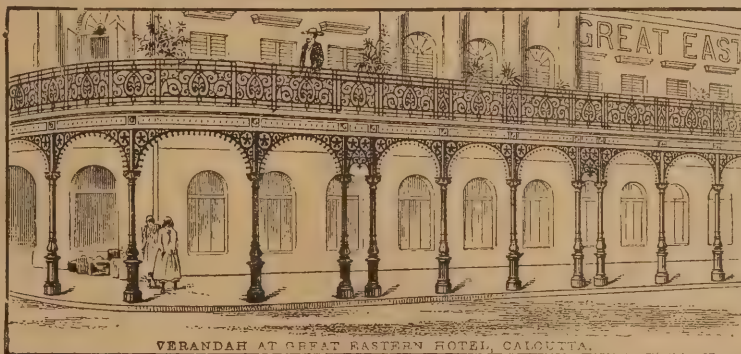
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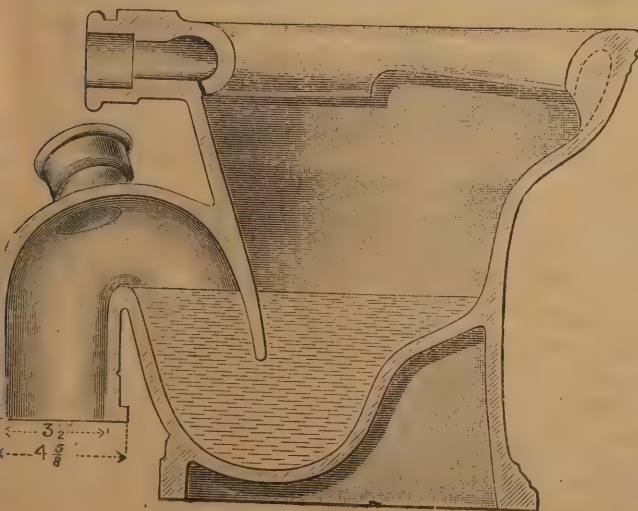
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RUSHDEN.—For the erection of new shops, warehouse, &c., for Mr. C. G. Ward, Newton-road, Rushden. Quantities by the architect, Mr. Harry Knight, Newton-road, Rushden: Dickens Bros. ... £1,350 0 Whittington and F. Henson ... 1,348 0 Tomlin ... £1,270 0 T. Willmott ... 1,258 0 T. and C. Berrill ... 1,262 15 C. E. Bayes* ... 1,259 10

* Accepted.
[Architect's estimate, £1,300.]

SALISBURY.—For the erection of offices and works, for the Salisbury Electric Light and Supply Company, Limited. Mr. E. Doran-Webb, architect: Webb and Co. ... £1,777 E. Hale, 78, Castle-street, Salisbury* ... £1,295 C. Trask and Sons ... 1,399 C. Tryhorn ... 825

* Accepted.

STOCKPORT.—Accepted for the execution of public road improvement works, Gorton-road, Reddish, for the Reddish Urban District Council. Mr. T. S. McCallum, engineer, 4, Chapel-walks, Manchester: John Sharples, Accrington ... £2,768

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Masonry.—Wm. Smith, Stonehaven	£345	0	0
Carpentry.—Mitchell & Sons, Stonehaven	269	0	0
Furnishing.	145	2	0
Plumbing.—E. Pithie, Stonehaven	103	10	0
Slating.—R. Burness and Son, Stonehaven	60	15	0
Plastering.—A. Cornack, Stonehaven	85	5	8
Painting and Glazing.—Barron and Son, Aberdeen	33	10	0
	£992	2	8

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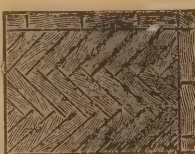
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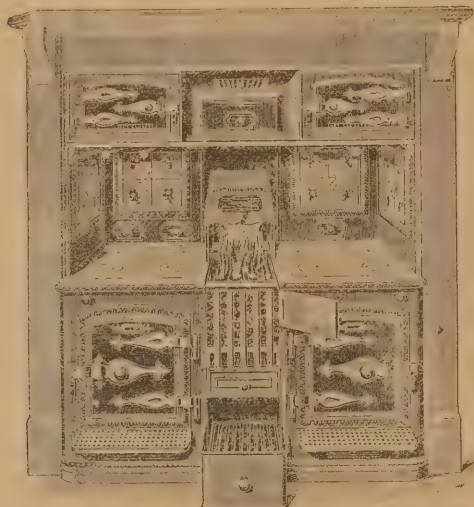
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Surveying and Sanitary SUPPLEMENT.

DECEMBER 1ST, 1897.

MODERN SANITATION.

By H. A. SAUL.

(Continued from page 287.)

V.

THE descriptions in the present series have hitherto been made to apply only to small dwellings, in order that the leading principles of Modern Sanitation might be easily explained and their application readily shown in connection with systems of drainage of a not too elaborate nature.

Plan No. 5 shows the drainage of some warehouse premises recently carried out by the author in the City of London, and has been chosen as the subject of this article on account of the more elaborate nature of the scheme and of its possessing several matters which have been untouched upon in the previous descriptions. The quality of the work, moreover, is of a better nature, and relative to the cost and manner of the building to which it appertains.

The main points in which this scheme differs from the former ones are these:—

Rain water and waste pipes do not discharge directly into gullies placed at feet of same.

The main drain is composed of heavy cast-iron pipes.

The manhole channels are of earthenware.

Soil pipes are of lead.

In town buildings of the warehouse class the only course usually possible, in dealing with

external walls as far as the ground level, where (if there are no areas) they would be taken by an easy bend to the inner face of the wall as above described.

The usual method of connecting the feet of rain water and waste pipes to ordinary gullies cannot be adopted in cases of this nature if a comparatively permanent efficiency is required, as the gully gratings would soon become broken by the heavy wear to which a warehouse basement is usually subjected, and the gullies themselves choked up with dirt in a few months, or else covered with goods to the complete detriment of ventilation. In the case under consideration all these pipes, with only one exception, have been continued beneath the ground to a small circular collecting chamber at the head of the manhole. This chamber consists of two parts, the upper constructed of brickwork faced with cement, into which the drains are taken, and the lower of a circular trapped gully similar to those used in roads, the trap of which is connected to the manhole. The chamber is fitted with a closed top, and ventilation is obtained by means of an ordinary mica flap inlet valve fixed above the floor to the nearest wall, and connected to the upper part of the chamber. Figs. 1 and 2 are a plan and section of the collecting-chamber, showing its connection with the manhole. Fig. 3 shows the means of inspection which is placed at the junction of the vertical with the horizontal pipes, and which enables a stoppage to be easily located and removed without the necessity of hacking up the floor and breaking into the drain.

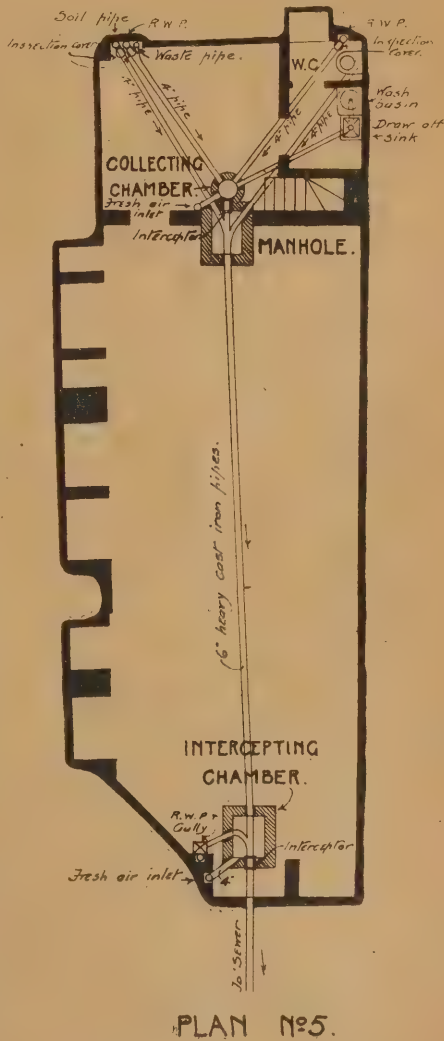
The drain which runs from manhole to intercepting chamber has been constructed of heavy cast-iron pipes, jointed with lead to obviate the risk of fracture or breakage from the jar of heavy goods or the vibration of machinery immediately above it. The pipes, previous to laying, had been coated within and without with Dr. Angus Smith's solution, a preparation which renders the iron proof against rust and corrosion.

The inside walls of manhole and intercepting chamber are faced with white glazed bricks, the channels in same are of white glazed stone-ware bedded in concrete, and the bottom is finished with cement, trowelled smooth and having falls to the channels, as described in the previous description of manholes.

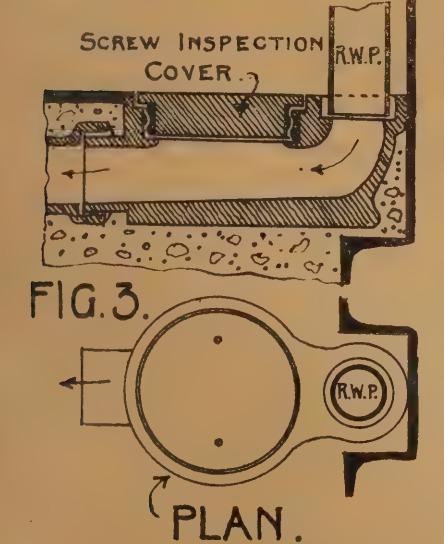
The soil-pipe is of drawn lead 4in. in diameter. The following table of relative sizes and weights of soil-pipes is an extract from the Bye-laws made by the London County Council, under the Public Health (London) Act of 1891, Section 39 (1):—

DIAMETER.	LEAD.	IRON.
	Weight per 10ft. length not less than	Weight per 6ft. length not less than
in.	lbs.	lbs.
3½	65	48
4	74	54
5	92	69
6	110	84

By a provision of the same Bye-laws, the trap of any water-closet, which water-closet is itself in connection with any other water-closet, must "be ventilated into the open air at a point as high as the top of the soil-pipe, or into the soil-pipe at a point above the highest water-closet connected with such soil-pipe, and so that such ventilating pipe shall have in all parts an internal diameter of not less than



2in., and shall be connected with the arm of the soil-pipe at a point not less than 3in. and not more than 12in. from the highest part of the trap, and on that side of the water seal which is nearest to the soil-pipe." This matter will be dealt with in full in the next article in connection with the subject of anti-siphonage.



the vertical draining pipes, is to carry them down upon the inner face of the basement walls, there to be connected to the manholes constructed in the floor of the basement itself; in fact the process consists of turning the formerly described methods inside out, or more properly speaking, outside in. Where possible all vertical pipes, especially soil-pipes, should be run upon the outside faces of the

SURVEYORS' INSTITUTION.*

PRESIDENT'S ANNUAL REVIEW.

THERE has been very little legislation in the past session affecting our Profession. The Extraordinary Tithe Act, 1897, settles two doubts which had arisen under the Extraordinary Tithe Redemption Act, 1886, and enacts that any rent-charge certified by the Land Commissioners or the Board of Agriculture shall be a charge on the whole farm or parcel of land described in their certificate; and also enacts that any such rent-charge may be apportioned in the same way as ordinary tithe rent-charge, and when apportioned, any part may be separately redeemed. The Market Gardeners' Compensation (Scotland) Act, 1897, applies the Market Gardeners' Compensation (England) Act, 1895, to Scotland. The County Dublin Surveyors' Act, 1897, refers only to the appointment of the county or district surveyor and his assistant surveyors. The Public Offices (Whitehall) Site Act, 1897, authorises the purchase for the site of a new War Office of the block of buildings north of the vacant land on which Lord Carington's house formerly stood, including several houses in Whitehall and the south side of Whitehall Place. This clearance, in addition to the removal of the west side of Parliament Street now in progress, will tend to increase the difficulty and the cost of obtaining professional offices in Westminster.

THE AGRICULTURAL RATES ACT, 1896,

has given rise to many difficult points, and to much recent discussion thereon. These, I think, will have to be dealt with chiefly by local rating and other surveyors. The main question seems to be, when is "agricultural land" not "agricultural land" as it is defined in Section 9 of the Act? According to the latest decision, it appears that market gardens and nursery grounds covered with glass are still "agricultural land" and not buildings, but this question may yet come before the House of Lords. Tithe rent-charge does not get the benefit of this Act, which seems to be a great hardship on the clergy, as tithe issues out of and is really a part of land. I trust I may be excused for referring to a most interesting and instructive book published this year, and written by our distinguished honorary member, the Duke of Bedford, called "The Story of a Great Agricultural Estate." The result

* Extracts from the opening address of the session, delivered by Mr. Christopher Oakley, at the opening meeting of the Surveyors' Institution.

of the figures therein made public is surprising, namely, that as to the

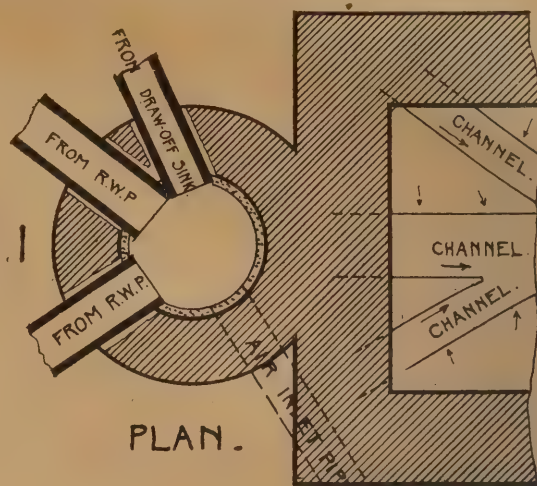
WOBBURN OR BEDS AND BUCKS ESTATE,

comprising over 32,000 acres, the expenditure thereon in seven years (including the last three years) out of the twenty years between 1876 and 1895 exceeded the income by a total of £38,954, and that in the Thorney estate, during the same time, the expenditure exceeded the income in five years (including the last two), showing a total deficit of £9899. But I refer to this book chiefly to point out that it seems to me to be a complete answer to those who advocate the breaking up of large estates into numerous small ones for the benefit of the community at large. It is beyond question that no small landowners could have spent anything like the sums on their property which the Dukes of Bedford have expended during the last century. This vast outlay is spent in the district in which the estates are situated, and must tend to the advantage, comfort, and well-being of all living thereon and the tradesmen of the locality generally. It may be interesting to many to inquire how agricultural depression has affected the sale and price of land. With that object in view, the secretary of the Estate Exchange has been good enough to get out for me the following figures from the register kept of sales. These figures are in continuation of those given by my predecessors, Mr. Beadle in 1886, and Mr. Watney in 1895, in their opening addresses. Return of sales of landed property of 100 acres and upwards outside the Metropolis (taking a radius of fifteen miles) showing the total acreage, total price realised, and price per acre:—

Year.	Total Acres Sold.	Total Price. £	Price per Acre. £ s. d.
1875	95,894	4,969,783	52 0
1885	31,070	986,253	32 0
1894	11,518	283,201	24 10
1895	36,291	683,104	19 0
1896	77,696	2,327,616	30 0

These figures show a very large increase of acreage sold in 1895 and 1896 compared with 1894, the total for 1895 being more than three times that for 1894, and the total for 1896 being more than double that for 1895. The

FIG. 1



price per acre in 1895 is about 20 per cent. below that for 1894, and on the other hand the price per acre in 1896 is more than 50 per cent. above that for 1895. This large increase, must, I think, be partly due to some sales of land, not strictly agricultural, being included in the return, as the value of land has not increased by one-half. I find it includes the Trafford Park Estate at Manchester. If that is omitted, the £30 per acre will be reduced to about £25, or an increase over 1895 of about 31 per cent. The following table gives the sales of ground rents registered in 1875, 1885, 1894, 1895, and 1896, and shows that though the amount sold has very largely increased, the price realised has increased from 26½ to 33½ years' purchase.

FREEHOLD GROUND RENTS.

Year.	Amount. £ s. d.	Sold for. £	Years' Purchase.
1875	9,498 19 2	251,686	26½
1885	12,298 9 6	342,478	27½
1894	13,518 4 6	376,700	28
1895	18,149 0 0	551,378	30½
1896	24,826 0 0	832,584	33½

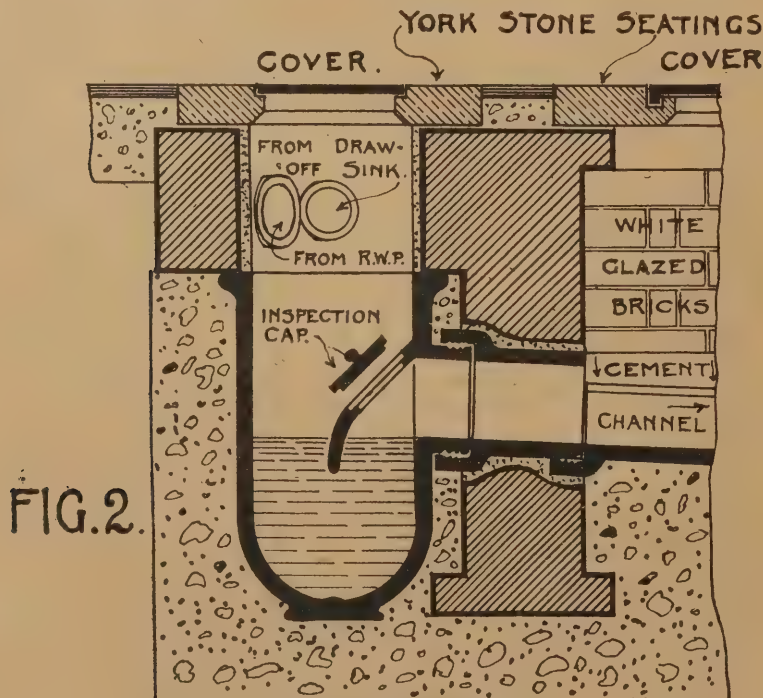
The total amount of all sales registered at the Estate Exchange in 1896, for London and the country, both auction and private contract, was £10,554,263. For the first nine months of this year the total is about 6 per cent. larger than for the same period in 1896. I observe that several of my predecessors have dealt in their opening addresses with the "Betterment" question in the various phases it has assumed from time to time. The subject has become somewhat stale, but it may be well just to state how the matter stands at the present moment. The London County Council appear to have got three schemes through Parliament in connection with their Improvements Act, 1897. These three schemes are as follows:—1. The construction of a new street, about 300 yards long, connecting the northern approach to the Tower Bridge, opposite the entrance to the Royal Mint, with Great Prescott Street; 2, the

WIDENING OF THE STRAND

by the removal of the block of buildings forming the south side of Holywell Street; and 3, the widening of the southern end of Tottenham Court Road by the removal of the block of houses forming the east side of Bozier's Court. The conditions as regards "betterment" imposed by the Tower Bridge Southern Approach Act of 1895, i.e.—(a) the confining of "worsenment" to the same area as "betterment," (b) the right of compelling purchase by the Council to be exercisable by the owner within three months of the Council's assessment only, and (c) the consideration of all matters to be left to the arbitrator without the right of going to a jury—apply to all three schemes, but they stand on a somewhat different footing from each other as regards what is known as the

"IMPROVEMENT AREA."

An addition to the Standing Orders of the House of Commons, known as 45B, stipulates that, in the case of Bills containing power to impose an improvement charge, the distance



on each side from the centre line of the new street to which the improvement rate shall apply shall not exceed three times the breadth of the new street (as shown on the plans). In the exercise of its discretion Parliament has allowed the full distance of three times the width of the new street in the case of the northern approach to the Tower Bridge, but in the case of the Strand has strictly confined the improvement area to the houses forming the north side of Holywell Street, and in the Tottenham Court Road improvement, to the houses forming the west side of Bozier's Court, with a few additional houses between the northern end of that court and Hanway Street. The only other cases in which betterment has been sanctioned by Parliament are the County Council's Act for the southern approach to the Tower Bridge, and an Act of 1894 of the Manchester Corporation for certain

IMPROVEMENTS IN THEIR CITY.

In both these cases our member, Mr. James Green, has been appointed arbitrator, and has held various meetings and deposited his valuations. Not less than one nor more than three years after the completion of any of these improvements the Council has to fix the amounts and areas of the charges which they claim, and if they are disputed another valuation has to be made, and the charges for betterment (or worsement if any such claims are made) have to be settled by an arbitrator. Till this has been done, probably five or six years hence, it cannot be known what the practical result of this new mode of dealing with the law and practice of compensation will be. I suppose I ought to say something with reference to our new buildings. In the Council's report in May last it was confidently predicted that the roofing-in would be completed before the winter, but owing to unforeseen difficulties, as regards foundations, a good deal of time was lost which it will not be possible to overtake. The Council has, however, brought

PRESSURE TO BEAR ON THE CONTRACTOR, with the result that rapid progress is now being made, and there seems to be some reason for hoping that a portion of the building will be available early next summer. While on the subject of Institution affairs, I should like to refer to the new Employment Registry which has just been established by the Council. It is hoped that those of the younger members who are seeking employment or desire to improve their position will, in course of time, derive considerable advantage from this new means of bringing them in touch with em-

ployers, and that employers will also find advantage in knowing where to look for qualified assistants. As you have no doubt observed, the Council has taken another very important step in deciding to hold one ordinary general meeting in each session in the provinces, and they have selected Manchester, which is an important examination centre, for the first experiment in this direction. Other parts of England will in turn be visited, and it is hoped that the results may prove advantageous in every way to the best interests of the Institution.

THE Secretary of State for Foreign Affairs has received from her Majesty's Minister at Lisbon copies of a Royal decree of the 5th November, inviting tenders, to be received by 5th January next, for the construction of the sewerage and drainage works and sanitary improvement of the city of Lisbon. The conditions of tendering may be inspected at the commercial department of the Foreign Office any day between the hours of 11 and 6.

APPLICATION is about to be made to Parliament for powers for two important schemes of harbour improvement on the Moray Firth, for both of which Mr. James Barron, C.E., Aberdeen, is acting as engineer. These harbours are Macduff and Buckie, and at each of these places the question of extension has been one of long standing. The scheme, for which Mr. Barron has prepared plans, is mainly directed to the deepening of the harbour and the extension of the west pier into deep water. The excavations will be carried out in all the three harbours or divisions of the port, and will ensure a depth of 16½ ft. at high-water of spring tides. The extension of the pier will provide berths for steamers, to which the harbour has hitherto been practically inaccessible. The estimated cost of these works is about £20,000. At Buckie an almost equally extensive scheme of improvement is being carried out. The Act which is now being applied for provides for the bettering of the harbour at a cost of about £15,000. According to Mr. Barron's plans, the east breakwater is to be extended in a westerly direction 100 ft., and a new jetty, 120 ft. long, constructed from the west pier into the outer harbour basin, the object of these two works being to provide better shelter for the harbour. The outer harbour is also to be excavated to a depth of 18 ft. below spring high water, so as to make it available for boats at all states of the tide.

Surveying and Sanitary Notes.

"LONDON a Million Years Ago" was the subject of a lecture delivered recently at the Bishopsgate Institute. The various strata beneath London, from the chalk upward, were dealt with in turn, as well as the physiographical conditions under which they were deposited, and the probable duration of the process. The chalk extending beneath London was shown to be an oceanic deposit, and a necessary deduction from this was that the nearest land surfaces were hundreds of miles away when the deposition took place. A beautiful seascape, most artistically coloured, was exhibited as representing the sight of "London Long Ago," and, by way of contrast, a picture of a bustling scene at Ludgate Circus followed. The composition of chalk and the formation of flints were explained, and the rate at which the chalk accumulated was discussed. Then, the lecturer stated, came a time when the ocean had begun to rise, and the chalk emerged from beneath the water and became dry land. But that was not for long, as a downward movement caused water once more to flow over that area, and the sand now known as the "Thanet Sand" was deposited. As that sand consisted of grains of quartz, it must have been brought from some distant land. It was mentioned that the loamy base of that bed of sand was useful for foundry purposes, and that its presence near the surface round about Woolwich determined the location of the Royal Arsenal there. Thus were the beds next in order, known as the Woolwich Beds, accounted for, as well as the Blackheath pebbles, which formed part of a bed extending from Herne Bay to Croydon. Those pebbly beds were old sea-beaches, which, by their incoherence, had spread out into level tracts, the unsuitability of which for agricultural purposes had led to their remaining uncultivated and unclaimed. Now that such areas were largely in demand for building and other purposes, the action of the County Councils, in preserving such places for the benefit and enjoyment of the people, was highly commended. The interest of the lecture culminated in an account of the formation of the London clay, and of the animals and plants which existed in the sea which then flowed over the site of London and on the land from which the materials of the clay were derived.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 4	Aberystwith—Church Chancel, &c.	Joint Hospital Board	Rev. P. Williams, Abergeldie House, Aberystwith.
" 4	Pontefract—Hospital Buildings	United Gaslight Co.	Termant and Bagley, Architects, Pontefract.
" 4	Sheffield—Concrete Retaining Wall, &c.	Spencer and Sons	F. W. Stevenson, Offices, Commercial-street, Sheffield.
" 4	Barrow-in-Furness, Lancs.—Erection of Stores	A. B. Henry	J. Butler, Architect, Cornwallis-street, Barrow-in-Furness.
" 4	Buckie, Scotland—Writing Chambers	Guardians	J. Perry, 44, East Church-street, Buckie.
" 4	Christchurch, Hants.—Lying-in Ward, &c.	J. J. Draper	A. Druiitt, Clerk, Workhouse, Fairmile, Christchurch.
" 4	Coupar Angus, Scotland—Farmhouse	General Prison Board for Ireland	Anderson, Chapman, and Co., Solicitors, Coupar Angus.
" 4	Hampton-on-Thames—Pair of Semi-detached Villas	Sheffield & Midland Railway Company	F. G. Hughes, Architect, Hampton-on-Thames.
" 4	Lossiemouth—Erection of Villa	School Board	R. B. Pratt, A.R.I.B.A., County Bank House, Elgin.
" 4	Belfast—Erection of Hospital	School Board	S. H. Douglas, Secretary, H.M. Prison, Belfast.
" 6	Reddish—Warehouse, &c.	School Board	Engineer, Gt. Central Railway, London-road, Manchester.
" 6	Rodborough, near Stroud—School	School Board	E. C. Gough, 5, John-street, Adelphi, London, W.C.
" 6	Rowley Regis—Additions to School	Urban District Council	J. T. Meredith, Architect, Kidderminster.
" 6	Llandudno—Municipal Buildings	Guardians	Silcock and Reay, Octagon-chambers, Milsom-street, Bath.
" 6	Middlesbrough—Infirmary Wards, &c.	Urban District Council	F. Lofthouse and Sons, 62, Albert-road, Middlesbrough.
" 6	Shibden, Yorks.—Semi-detached House	Urban District Council	Jackson and Fox, 23, George-street, Halifax.
" 7	Woking—Public Offices	Metropolitan Asylums Board	G. J. Woolridge, Bank-chambers, Woking.
" 8	Winchmore Hill.—Nurses' Home and Isolation Pavilion	Guardians	Pennington and Son, Hastings House, Norfolk-street, W.C.
" 8	Bingham, Notts.—Board Room, &c., at Workhouse	Urban Sanitary Authority	A. R. Calvert, Architect, Nottingham.
" 8	Clayton, Yorks.—Eleven Terrace Houses	Llantwit Lower School Board	S. Spencer, 344, Great Horton-road, Great Horton.
" 8	Great Yarmouth—Additions to Isolation Hospital	Guardians	J. W. Cockrill, Borough Surveyor, Town Hall, Gt. Yarmouth.
" 8	Melincrythan, near Neath—New Schools	Corporation	J. C. Rees, St. Thomas-chambers, Church-place, Neath.
" 8	Newhaven—Erection of Infirmary	Corporation	Clayton and Black, 152, North-street, Brighton.
" 9	Kilkenny—Forty Houses, &c.	W. R. Northway	W. R. Cleere, Executive Sanitary Officer, Kilkenny.
" 9	Halifax—Police Station, &c.	Admiralty Works Department	G. Buckley and Son, Architects, Tower-chambers, Halifax.
" 9	Newquay—Erection of Villa	Co-operative Building, &c., Society Ltd.	Murray and Bowling, Solicitors, Newquay.
" 10	Pett, Sussex—Coastguard Station	Committee of Visitors	Coastguard Station Watchroom, Pett, Sussex.
" 11	Grangemouth—Sixteen Houses	Corporation	G. D. Page, Architect, Old Globe-chambers, Falkirk.
" 11	Neyland, Pembroke-shire—Erection of Chapel	Committee of Visitors	S. W. Edwards, 7, Lawrenny-terrace, Neyland.
" 13	St. Johnstone's Castle, Co. Tipperary—Castle Alterations	Corporation	E. A. Hackett, Architect, Clonmel.
" 13	Nottingham—Extension of Asylum	Committee of Visitors	G. T. Hine, 35, Parliament-street, Westminster, S.W.
" 26	Buenos Ayres—Central Railway Station	Corporation	Legation of Argentine Republic, London.
1898.			
Jan. 1	Copenhagen—Repairing Cemented Museum Walls	Corporation	F. Meldahl, Offices, Copenhagen.
No date.	Astley—Erection of House	Corporation	J. R. Withers, Architect, Shrewsbury.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Blackpool—Four Detached Houses	County Asylum Visiting Committee ...	Goldsmith and Son, 63, Faulkner-street, Manchester.
"	Bodmin—Erection of Hospital	W. Pickersgill	R. P. Edyvean, Clerk, Bodmin.
"	Castleford—Erection of Hotel ... ..	... ..	A. Hartley, Architect, Carlton-chambers, Castleford.
"	Hadleigh, Suffolk—Two Villas ... ..	... ..	A. Moring, Hadleigh.
"	Great Horkeley, Essex—Addition to "The Cedars" ... ..	... ..	C. E. Butcher, 3, Queen-street, Colchester.
"	Harrogate—Alteration, &c., to Hotel	O. Barber	A. A. Gibson, 8, Cambridge-crescent, Harrogate.
"	Lazonby, Cumberland—Heightening, &c., Wall ... ..	... ..	— James, Silloth.
"	Sheffield—Plastering to 60 Houses ... ..	... ..	Foreman, W. Frobisher, Shirland-lane, Attercliffe, Sheffield.
"	Ulverston—Re-erecting Paper Mill ... ..	... ..	W. Totty and Sons, Undercliffe, Yorks.
"	Undercliffe, near Bradford, Yorks.—Plastering 7 Houses ... ..	... ..	H. T. Fulton, 91, Donegal-street, Belfast.
"	Whitehead, Belfast—Three Terrace Houses	Victoria Hotel and Cafe Co., Limited ...	F. T. Beck, Architect, Darlington-street, Wolverhampton.
"	Wolverhampton—Pulling Down Buildings ... ..	... ..	Ashington, Co-operative Society, Ashington.
"	Ashington—Dust-proof Glazed Screen ... ..	... ..	F. S. Biram, Architect, Hardsham-street, St. Helens.
"	St. Helens—Additions to Schools ... ..	... ..	W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Belfast—Sixteen Houses	H. Murray	Armstrong & Knowles, 38, Grainger-st., Newcastle-on-Tyne.
"	Easington—Laundry and Boiler House	Guardians	J. Ingram, Architect, Abington-road, Northampton.
"	Kingshorpe—Erection of Hospital	Urban District Council	T. W. Cubbon, 54, Hamilton-street, Birkenhead.
"	Douglas, Isle of Man—Pupil Teachers' Centre, &c.	School Board	J. D. Webster, 19, St. James's-street, Sheffield.
"	Hackenthorne, Yorks.—Erection of Church ... ..	... ..	J. A. Hanna, 102, Donegal-street, Belfast.
"	New Mills, Tyrone—Church Alterations ... ..	... ..	A. M. Mackenzie, 1, Bon Accord-street, Aberdeen.
"	Braemar—Alterations to Hotel ... ..	... ..	G. Kay, Architect, Ramsey, Isle of Man.
"	Braddon, Isle of Man—Stone Walls, &c. ... ..	... ..
ENGINEERING—			
Dec. 4	Sheffield—Retort Mouthpieces	United Gas Co.	F. W. Stevenson, Commercial-street, Sheffield.
" 4	Sheffield—Retort Fittings	United Gas Co.	F. W. Stevenson, Commercial-street, Sheffield.
" 6	Southampton—Pontoon, &c. (Two Contracts)	Harbour Board	E. C. Poole, 4, Portland-street, Southampton.
" 7	Craiova—Waterworks	Town Council	The Mayor, Craiova, Roumania.
" 7	India Office, S.W.—Supply of Locomotives ... ..	... ..	Director-General of Stores, India Office, Whitehall, S.W.
" 7	Kirkby Ireleth, Lancs.—Bridge Works	County Council	Bridge Master's Office, 19, Brazenose-street, Manchester.
" 8	Wellington, Somerset—Steam Roller	Rural District Council	W. S. Price, Clerk, Wellington, Somerset.
" 8	Hemsworth, Yorks.—Steam Road Roller	Rural District Council	T. H. Richardson, Surveyor, Hemsworth.
" 9	Londonderry—Supply of Electric Light Carbons	Corporation	J. Christie, City Electrical Engineer, Guildhall, Londonderry.
" 11	Swindon—Lighting, Gas Supply, &c.	Urban District Council	H. Kinnear, Clerk, Public Offices, Swindon.
" 13	Castlebar, Ireland—Water Supply Works, &c.	Asylum Governors	T. Griffiths, Clerk, District Lunatic Asylum, Castlebar.
" 14	Bruges, Belgium—Harbour Works ... ..	... ..	Provisional Government, Bruges.
" 14	Barking—Heating Baths, &c.	Urban District Council	C. J. Dawson, Surveyor, Public Offices, East-st., Barking.
" 18	Kirkcaldy—Heating Memorial Halls ... ..	... ..	Dunn and Findlay, 35, Frederick-street, Edinburgh.
" 20	Canterbury—Electric Light Plant	Electric Lighting Committee	R. Hammond, Engineer, Ormond House, Gt Trinity-lane, E.C.
" 27	Carrickfergus—Retort Bench, &c.	Gas Company, Ltd.	R. Campbell, Manager, Carrickfergus.
" 27	Braila, Roumania—Wooden Bridge, &c. ... ..	... ..	Prefect, Braila, Roumania.
" 30	Catazaro, Italy—Tramway ... ..	... ..	Municipal Authorities, Catazaro, Italy.
" 31	St. Gilles-lez-Bruxelles—Gasworks	Council	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway	Government	Central Directorate, Public Works, Porte Alegre.
1898.			
Jan. 9	Athens—Docks Extensions ... ..	... ..	Chancellerie of the Monarchie Attique and Boticie, Athens.
Feb. 28	Pernambuco—Port Works	Government	Brazilian Ministry of Public Works, Rio de Janeiro.
No date.	Amble—Laying Sewer	Urban District Council	W. Gibson, 31, Queen-street, Amble.
"	Burnley—Septic Tank, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
"	Hemsworth, Yorks.—Sinking Shaft, &c. ... ..	... ..	Hemsworth Collieries, near Wakefield.
"	Tenby—Pier, &c., Extension ... ..	... ..	R. S. G. Moore, 17, Victoria-street, London, S.W.
IRON AND STEEL—			
Dec. 4	Swansea—Iron Castings, &c.	Harbour Trustees	Engineer, Swansea Harbour Office, Swansea.
" 4	London, N.—Supply of Stores, &c.	Great Northern Railway Co.	— Martin, Stores Superintendent, Doncaster.
" 4	Leeds—Ironwork for Stables	Corporation	City Engineer, Municipal-buildings, Leeds.
" 6	Edinburgh—Grippers for Cable Cars	Edinburgh & District Tramways Co. Ltd. ...	W. N. Colam, 57, Henderson-row, Edinburgh.
" 6	Margate—Cast-iron Socket Pipes, &c. ... ..	... ..	Manager, Waterworks Offices, Princes-street, Margate.
" 7	Dublin—Various Stores (32 Contracts)	Midland, Great Western Railway Co. ...	General Stores Department, Broadstone Station, Dublin.
" 7	Shoreditch, E.C.—Iron Railings, &c.	Vestry	J. R. Dixon, Surveyor, Town Hall, Old-street, E.C.
" 7	Dover—Iron and Steel, &c.	Harbour Board	J. Stilwell, Register of Harbour, Dover.
" 8	Dublin—Chains, &c.	Port and Dock Board	N. Proul, Secretary, Port and Docks Office, Dublin.
" 9	Dublin—Boiler Tubes, Iron Castings, &c.	Steam Packet Company	Company's Office, 9, Regent-road, Liverpool.
" 9	Nottingham—Various Stores and Materials	Corporation	A. Brown, City Engineer, Guildhall, Nottingham.
" 11	Bristol—Castings, Ironmongery, &c.	Sanitary Authority	T. H. Yabbicom, City Engineer, 51, Prince-street, Bristol.
" 13	Walton-on-Thames and Hersham—Cast-iron Pipes	Urban District Council	W. H. Radford, C.E., Angel-row, Nottingham.
" 13	South Hetton—Iron Castings, &c.	Coal Company Limited	J. R. Lambert, South Hetton, Sunderland.
" 13	Kinson, Dorset—Iron Fencing, &c.	School Board	— Hayward, Kinson Village, Dorset.
" 29	Adelaide, South Australia—Steel Bars, &c. ... ..	... ..	Agent-General, Tender Board of Adelaide, London, E.C.
" 29	London, E.C.—Wrought and Firebar Iron	Bengal and North-Western Ry. Co. Ltd. ...	E. L. Marryat, 237, Gresham House, Old Broad-street, E.C.
PAINTING AND PLUMBING—			
Dec. 6	London, S.E.—Colours, Oils, Whitelead, &c.	Crystal Palace Company	Storekeeper's Office, Crystal Palace, Sydenham, S.W.
ROADS—			
Dec. 4	Dewsbury—Paving, Flagging, &c.	Corporation	Borough Surveyor, Town Hall, Dewsbury.
" 4	Worcester—Kerbs, Gravel, Sand, Gully Grates, &c.	Corporation	T. Caink, City Engineer, Guildhall, Worcester.
" 6	Birstall, Yorks.—Street Works	Urban District Council	Council Offices, Gasworks, Smithies, Birstall.
" 6	Leith, Scotland—Paving, &c.	Magistrates and Council	Borough Surveyor, Town Hall, Leith, Scotland.
" 7	Brookley, S.E.—Kerbing, Tar-paving, &c.	Lewisham Board of Works	Surveyor's Office, Town Hall, Catford, S.E.
" 10	Worcester—Hire of Horses, Carts, &c.	Corporation	T. Caink, City Engineer, Guildhall, Worcester.
" 14	West Ham, E.—Making-up Roads & Paving (2 Contracts)	County Borough	L. Angell, Borough Engineer, Town Hall, Stratford, E.
No date.	Sandiacre, Notts.—Kerbing, Channelling, &c.	R. P. Stevens	A. R. Calvert, Surveyor, Nottingham.
SANITARY—			
Dec. 4	Saltburn-by-Sea—Drainage Works	Urban District Council	R. A. Jackson, Surveyor, Milton-street, Saltburn-by-the-Sea.
" 6	Stockport—Sewerage Works (Two Contracts)	Rural District Council	H. H. Turner, Council's Surveyor, Workhouse, Stockport.
" 7	Shoreditch, E.C.—Pipe Sewers (Two Contracts)	Vestry	J. R. Dixon, Surveyor, Town Hall, Old-street, E.C.
" 8	Hemsworth—Scavenging	Rural District Council	M. Theaker, South Kirby.
" 13	Walton-on-Thames and Hersham—Sewerage Works	Urban District Council	W. H. Radford, C.E., Angel-row, Nottingham.
1898.			
Jan. 5	Lisbon—Sewerage and Drainage Works ... ..	... ..	Commercial Department, Foreign Office.
TIMBER—			
Dec. 4	Swansea—Supply of Timber	Harbour Trustees	Engineer, Harbour Office, Swansea.
" 9	Dublin—Supply of Timber	Steam Packet Company	Secretary, 15, Eden-quay, Dublin.
1898.			
Jan. 3	Valmaseda, Spain—Sleepers, Locomotives, &c.	Municipal Authorities	Municipal Authorities, Valmaseda, Spain.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 14	London, N.E.—Electric Lighting Scheme ... ..	... ..	Hackney Vestry.
" 16	Menni Bridge—Designs for Landing Pier	£40	Urban District Council.
" 31	Altrincham—Plans for Offices, &c.	£20, £10	Urban District Council.
1898.			
Jan. 8	Belper—Schemes for Water Supply ... ..	... ..	Rural District Council.
Feb. 15	Port Elizabeth, S. Africa—Design for Library Building	£105, £52 10s.	Public Library Committee.
No date.	Bury—Designs for beautifying Chapel ... ..	... ..	Trustees of Brunswick Chapel, North-street, Bury.



An Architectural Causerie.

Some Anticipated Regrets.

ONE remarks with a rising concern the gradual development of those various schools, studios, and classes which of late years have so multiplied for the instruction and preparation of embryo architects aspiring to the Profession. The usage is a sign of the times; it is a scion of that general supremacy of the diploma. The wise young man of these days, in the majority of the professions and trades, does not aspire to knowledge and power, to confidence and dexterity, or ingenuity in the business of his life, but rather to certificates and diplomas, which state, above authoritative signatures, that the above-mentioned wise young man has taken a certain course, attended a certain series of lectures, and qualified by examination. The system strikes one as being ludicrous and pernicious—as though a soldier should undertake the service of his country for the medals to be won therein. The characteristic influence that makes (and mars) this, our nineteenth century,—as it will be viewed by posterity—is Steam. Fabrics, Furniture; all the Crafts, and Architecture, Painting and Sculpture themselves, have yielded in greater or less degree to this steam-bred greed for the cheap and the meretricious. It would seem, now that vulgarity has exhausted itself in this direction, and a healthy reaction has set in for the genuine rather than the sham article—that we are to have a sort of steam-made profession. Possibly the professional, a man of the distant future, will compare with his brother of the past, somewhat as cheap linoleum now does with the oak parquetry it is meant to suggest; he will be superficial, pedantic, and lacking in that personal force and individuality which is the chief prerogative of manhood. The men who think, and experiment, and formulate and contribute ideas to the Profession, will rather be those who manage and direct these huge rival academies—incubators we may call them—which will then be engaged in manufacturing and hatching out the practitioners of the various trades and professions. The raw youth will be put in at one end and, if he has the *calibre* to survive the sifting and testing processes of the mechanism, will, in course of some five years, be ejected at the other end as a hall-marked authenticated member of his elect profession. Whatever advantages the system may be supposed to hold, the disadvantages remain sufficiently manifest. A young man who is subjected to an all-absorbing course of study by operating step by step and month by month for a period of five years, completely filling his time and coercing his inclination, must emerge at the conclusion, whatever his natural predilection may have been in the original instance, more or less of a pedant; a creature trained in a habit of mind in diagonal antithesis to original thought or enterprise of ideas. Now, if these qualities are, in some of the professions, over-balanced by the advantages of the system, it is certainly not the case with Architecture. This is surely beyond all dispute, but as any particular consideration of the question brings us very near to the yawning brink of “Architecture, an Art or a Profession?” one begs permission

to leave this side of the question. What one may well refer to, however, is the exact origin and explanation of this extraordinary activity in the direction of architectural education. It has arisen no doubt from the strong favour which the examination of the R.I.B.A. has found among architects. The distinction of being an associate of that body and the implication of professional qualification associated with it, is already beginning to be regarded as the recognised test with the general public. It is looked upon as the acknowledged diploma of professional efficiency. But what, in its turn, is the *raison d'être* of the examination—of the diploma. It is stated to be the “protection of the public.” This strikes one as being delightfully quaint and ingenious. The idea of that rampant vandal, the British Public, being protected—and by architects of all men—is a deliciously high-flavoured irony, whose equal one can scarcely call to mind. One has always tasted a pleasant consolation as one hurried askance through a rank crop of the

MODERN ARCHITECTURAL PROBLEMS.*

AS ILLUSTRATED BY SOME EDINBURGH BUILDINGS.

BY PROFESSOR G. BALDWIN BROWN.

ONE of the foremost questions of the hour on the artistic side of Architecture is that of the meaning and value of architectural styles in modern practice. The younger members of the Profession are asking themselves: What are our obligations to the styles of the past? How far are we bound to make our work conform to types established by the practice of bygone ages? Have the old words, Classic, Gothic, Renaissance, and the like, any real meaning for the nineteenth century, or is it not rather the case that, as modern requirements must be met by modern



PAIGNTON CHURCH, DEVON. FONT AFTER RESTORATION BY MESSRS. H. HEMS AND SONS.

British Public's “gintee residences,” to think that here, at least, there was a fair and equitable balance in the generally inexplicable orderings of Nature. The man who had such execrable vulgarity of sentiment as to rent one of these advertisements of gentility (?) and the horrid taste to admire their pinchbeck qualities of design, at least ran the distinct risk of having his family decimated by disease, his head broken by a falling tile, and of getting his leg fractured in the dark by the collapse of his front steps. There is so little of poetic justice in the world that it goes straight to the place where one's heart ought to be to see any body of men—least of all architects—meddling with this happily-ordered instance of it. Besides, the estimable B.P., as exemplified in the “gintee resider,” will have bad design; and he sturdily refuses to accept a design of inferior vileness. B. C.

means, it is time for the architect to come out from under the shadow of these antique conventions and to work out the solution of the problems about him in his own way? A word or two may be said on the general subject of architectural styles and on the part they have played in the practice of the past.

ARCHITECTURAL STYLES.

A “style” may be roughly defined as a particular method of construction, by which parts are put together in a certain scheme of proportion and accentuated by details of marked character, the whole being repeated within certain limits of variation in all the buildings of particular countries and epochs. This repetition within certain limits of variation is the fundamental fact in archi-

* Extracts from an address delivered before the Edinburgh Architectural Society on December 1st.

tectural history. The limits of variation have been wider than has often been supposed. Even in the case of the so-called classical "orders" there was much more fluidity in the forms, more life and movement in the way they were used, than students have sometimes been taught to believe. The fact is, the cut-and-dried schemes of the "orders" do not correspond with the real facts of antique Art. It is difficult, indeed, to find any one measurement on the monuments that corresponds with what Vitruvius gives in the particular case as the norm, and a false impression of Greek Architecture has been derived from studying it in the schemes of the "orders" drawn up largely under Vitruvian influence, by architects of the later Renaissance. The repetition in question has, however, been maintained with curious persistency through long periods of time. Features have been modified from age to age, but we seldom find a new one invented. Architects in the present day may rebel against having to use conventional forms handed down by tradition from by-gone years, but it is only what has been done regularly by their brethren of the past. To follow a style, that is to employ old forms instead of casting about for new ones, has been the rule in architectural practice, and there is a reason for this that carries us back to the essential character of the architectural Art, though it is one that the practitioner may not always have formulated to himself.

SECRET OF ARCHITECTURAL EFFECT.

The secret of architectural effect is not to be found in the forms themselves, but in the manner in which they are employed. There is a distinct advantage in the use of well-understood conventional features. The spectator takes these as a matter of course, and his attention is not specially directed to them as they are in themselves, but only to their effect in combination. They are like the words in poetry. A poet does not invent a new vocabulary when he wants to write a poem. He builds up the structure of his verse out of the familiar words of daily intercourse. If these words were not well understood the hearer's attention would be distracted by curiosity about them, and the music of the verse and the import of the thought conveyed would be lost to him. It is the relations of parts in the structure that is the important matter in the effect of Architecture. The artistic impression of an architectural monument depends largely on the sub-division of the mass into parts related to each other, and to the whole in a carefully designed scheme of proportion. As the sub-division must depend on the internal arrangement of the structure, and this on the purpose and use of the various portions, the question of planning is brought into intimate connection with the more artistic aspects of design. Planning will suggest the sub-divisions, but these will have to be worked out at the same time with strict regard to aesthetic demands. When this has been accomplished the eye balances part against part, and is satisfied if the relations of size and shape and position have been duly adjusted. The familiarity of the forms enables the eye to judge these relations in quiet, without any disturbing considerations, such as would come in the way if the forms attracted special attention to themselves.

THE USE OF OLD FORMS.

In this matter a good deal of instruction can be derived from the work of Sir Christopher Wren and of James Playfair. Neither troubled himself much about the character of the forms he used, or felt anything irksome in the "bondage of a style." Wren used the Classic forms prevalent in his own time with considerable freedom, not caring much whether they were new or old, but intensely solicitous about his proportions. The distinction that belongs to Wren's towers and

steeple depends entirely on his fine native sense of proportion, in which few architects have been his equal—none his superior. Much the same may be said of Playfair. He took the style of his time just as it came to him, but the merit of his compositions does not depend on this uniformity. No one looks at Donaldson's Hospital, for example, as an illustration of any particular style; its effect is independent of any such consideration.

PERSPECTIVE VIEWS.

The building has, of course, immense advantages of site and surroundings, and that imposing magnitude which is in itself no small element in architectural effect. Its great merit is, however, the way it is broken up into subsidiary masses, the composition of which seems happy whatever point of view is taken. In these masses the same features are reproduced throughout the building, and the designer has calculated on the variety gained by perspective views from many different quarters. Though the Wren turrets are very numerous and are all alike, yet they never seem to get in each other's way, but have the happiest knack of falling into groups that contrast in size and shape, and secure the effect from any appearance either of monotony or of confusion. These really architectural qualities in a building do not depend on what the details are in themselves, but they are all the more apparent when the details have that general conformity to orthodox practice which keeps them in due subordination. These considerations are in favour of the general principle of conformity to style in architectural practice, but there is a difficulty in applying the principle in the present day. A modern designer might agree about the advantage of employing well-understood forms so as to concentrate artistic effect upon composition, but might point out with reason that it is not possible to build in "style" in the abstract—some distinct style, some connected set of forms, is needful before the advantage can be secured, and it is just this which in modern days is wanting. It is often pointed out, and with much show of truth, that we have now no traditional style to supply us with forms, and that the architectural world is ruled at the present time by a judicious eclecticism, under which architects will erect for us with equal readiness a Gothic church, a classical bank or museum, and a Renaissance mansion. This aspect of pure eclecticism about modern practice is very much the outcome of the repeated artistic "revivals" which have marked the nineteenth century, and have persuaded it that it has no architectural style of its own. These revivals have attracted much attention, because each one came in on the crest of the wave of some movement in the world of ideas, and has been served by devotees and by champions.

THE STYLE OF THE NINETEENTH CENTURY.

The so-called Gothic revival was blessed with a sort of religious consecration, and a most eloquent and enthusiastic prophet in the person of Mr. Ruskin. The "Scottish Baronial" revival was motivated largely by the influence of Sir Walter Scott, who brought mediævalism in its secular aspects so greatly into vogue. Then there has been a classical revival, marked by the use of strictly antique forms—a style of which the High School, Edinburgh, is perhaps the most characteristic. St. George's Hall, Liverpool, the noblest expression. These and other such movements, all of a more or less artificial nature, have driven out of view the fact that after all the nineteenth century has a style, and a very good style, of its own. In Edinburgh this fact is perhaps more easily remembered than it is elsewhere in the country. Here the century opened with a singularly consistent style of Architecture—

the style of Robert Adam, and this style was carried on in the first half of the century by James Playfair and others of the same school. The style they represented was not a revival, but was essentially the style that had originated at the Tuscan Renaissance, and had been practised for the preceding 300 years. The Tuscan architects of the fifteenth century based their work on a revived study of the antique, but they did far more than merely copy classical models. The Tuscan Renaissance really presented the world with the third of the three distinct styles that the civilised West has known. There had existed the Architecture of the colonnade, represented by the classical "orders," and the Architecture of the arch and vault, expressed partly at Byzantium, but most perfectly in French Gothic. Now, the Florentines created the Architecture of the wall and its openings, their treatment of which was something new in architectural history. The colonnade is the negation of the wall, while the tendency of French Gothic is to eliminate the wall, and turn the building into a series of stone canopies, upborne by a scientifically contrived framework, filled in by a light screen of glass. The Renaissance architects, on the other hand, took the wall as the fundamental element in their design. As has been said of them, "all their Architecture is disposed for the main purpose of bringing out into importance the wall in its constructive significance, by dividing it into stories marked by ranges of windows, and by completing the whole structure both below and above suitable plinth and cornice." These Renaissance façades are really the first works of modern Architecture, for they provide a form of building exactly suited to the needs of modern life. Cities began at that period to assume the appearance they wear at present, and the wall with openings to the street or public place is the architectural form that fits best their character. Some of these façades rely for their artistic effect upon the composition of features which are necessary parts of the construction as a thing of use, without borrowing any added features for the sake of mere effect, and they show that it is possible to secure by these simple means both monumental grandeur and a large measure of architectural beauty.

EDINBURGH BUILDINGS.

That this style suited the modern world is shown by its persistence down to our own time. On the one hand it is perpetuated in monumental buildings of which familiar Edinburgh examples are Sir William Chambers' mansion (now the Royal Bank) in St. Andrew Square, Robert Adam's Register House, or his eastern front of the University, or Elliot's, Waterloo Place; on the other hand, it is carried out in humbler forms in the ordinary house-front of our streets. This latter fact is not one to pass by with indifference. In discussing the question of a modern style it must always be remembered that styles are not artificial productions, but are generally evolved in some organic manner from pre-existing conditions. If, therefore, we find a certain method of building so naturally suited to modern conditions of life that it occurs regularly in by far the largest class of buildings erected in our centres of population, this fact may help us to recognise in it a style that is really essentially our own. If out of the elements which we get in a simple utilitarian form in the domestic house-front it is possible to create monumental Architecture, this indicates to the architect of to-day a natural field for the exercise of his gifts. The establishment of a modern style need not imply any heroic effort of invention or boldness of innovation, only the drawing out in an artistic spirit of the possibilities latent in everyday structures of use.

(To be continued.)

THE NEW McEWAN HALL AT EDINBURGH.

[BY A SPECIAL CORRESPONDENT].

EDINBURGH is rich architecturally, and its wealth has recently been augmented. There was opened there last week a notable addition to the University buildings, to wit, the McEwan Hall, so named after the donor, one of the members for the City of Edinburgh. The plan of the Hall is based on the form of the ancient Greek theatre. This form was chosen as best suited for an auditorium, and one likely to ensure

is blank with the exception of one inscribed panel. This section is divided from the upper by a band of Italian ornament, with panels at intervals containing many coats of arms.

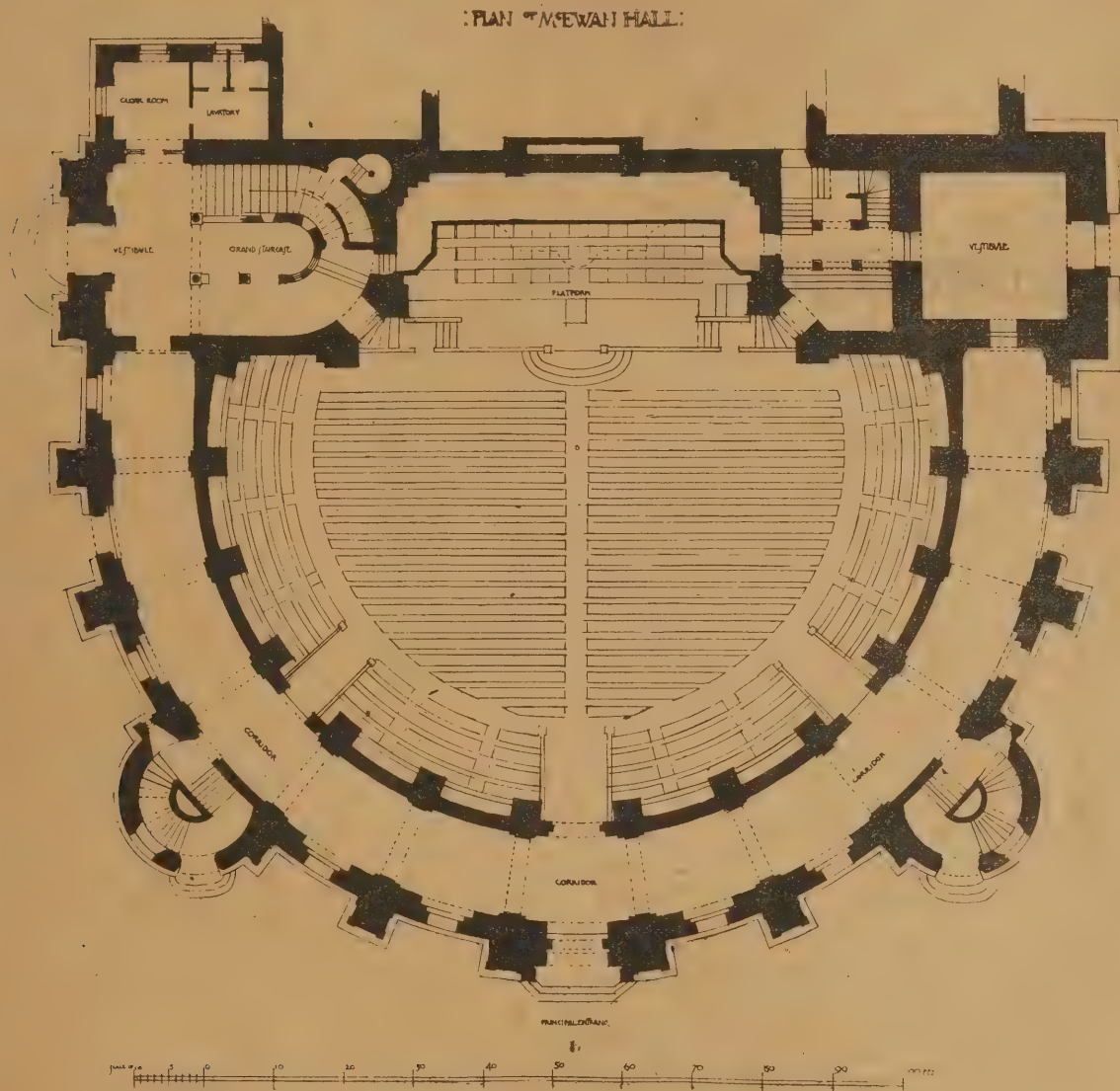
The upper of the three horizontal sections is arcaded in red stone, and is surmounted by an architrave frieze and cornice, and an open balustrade. The height of the outer wall from the base to the top of the balustrade is 64ft. An interior wall concentric with the outer encloses the Hall proper, and rising above the outer wall, to which it is joined by flying buttresses, supports at its summit the dome-shaped steel roof, which is surmounted by an ornamental lantern 30ft. high. The total height from the street level to the top of the lantern is 130ft. The outer

the University which find place on the outside wall. On the mosaic flooring of the landing are panels containing the arms of the donor, the City, and the University.

From the first landing of this principal stair, access is gained to the reception rooms, set apart for the assembling of the Senatus Academicus, distinguished guests, &c.

The staircases leading to the galleries are placed in the round projections at the south and north-east angles of the building.

Two staircases are placed in each projection, one leading to the first gallery, the other to the second, so that the two currents of people going to and coming from these parts of the house are kept entirely separate from one another. This plan of double staircases gives



FROM A PHOTO BY ALEX. A. INGLIS, EDINBURGH.

good acoustic results. The architectural treatment is the same as the rest of the new University buildings, viz., Early Italian Renaissance. The flat side of the semi-circle abuts on the Medical School on the west, while the principal elevation is directly opposite on the east, facing the triangular open space and Bristo Street.

Here is situated the principal entrance, 30ft. in height and 16ft. in width, flanked on each side by double pilasters, and crowned by a semi-circular pediment, containing a marble representation of the ceremony of conferring academic degrees. Besides this there are six other entrances to the Hall from the outside.

The external wall is divided vertically by projecting buttresses containing niches for statuary. It is divided horizontally into three sections. The lower section is panelled and is pierced by the circular windows which light the interior corridor, and the intermediate section

and inner walls of the Hall are 12ft. apart. The space between them is on the ground floor utilised as a corridor. This corridor is divided into compartments by pilasters, and is vaulted; the panels of walls and vaults being filled in with fine red brick. The flooring is of marble mosaic. The corridor runs round the entire auditorium, and gives communication between the various staircases, entrances, and exits.

The entrance to the principal staircase, which is placed in the south angle, is from the quadrangle of the University building. The staircase is oblong in form, and is carried on pillars and arches which are vaulted; its broad shallow steps are guarded by a balustrade of stone. The groined ceiling is decorated in colour, the main features being a series of coats of arms, including those of the Rector, Lord Balfour of Burleigh, and the late Rector, the Right Hon. G. P. B. Robertson, besides those of the already mentioned dignitaries of

much greater facility of entry and exit. From the corridor on the ground floor entry to the Hall is gained by five separate doors.

The dimensions of the hall are spacious, the internal diameter being 106ft., while the height to the dome light is 90ft. This gives an ample floor space, and provides abundant room for the placing of two galleries. The area floor is laid with blocks of oak in patterns, and in order to allow of its being used for other than formal academic functions, the seats on it are of a movable character; only round the circumference are four tiers of fixed fauteuils, also in oak.

The wall is panelled in oak up to the height of the first gallery.

The galleries are placed over the corridor on the ground floor, in the space between the outer and inner walls of the Hall; the inner wall being opened up to the interior of the Hall by means of an arcading of thirteen bays, each



McEWAN HALL. INTERIOR: SHOWING PLATFORM AND ORGAN. FROM A PHOTO. BY ALEX. A. INGLIS, EDINBURGH.

15ft. in width, and rising from the floor to the top of the arch a distance 48ft. upon columns of red Corsehill stone, supported as far as the balustrade of the first gallery by square moulded freestone bases and surmounted by gilded Corinthian capitals.

The pews in the galleries are of oak placed on a sloping platform, and the galleries are guarded by an open balustrade of the same material. These balustrades have central panels, those of the lower gallery being filled with appropriate designs carved and gilded. At the wall head is a carved stone frieze and cornice, above is a coved clerestory, with circular windows 7ft. in diameter, while the whole Hall is covered in with a dome constructed of steel and panelled with wood. In the centre of the dome is a circular light, 22ft. in diameter, which, with the clerestory windows, lights the Hall in the daytime.

The flat side of the Hall, that abutting on the New University Buildings, is reserved for the platform, and the arrangements of it are especially designed for University ceremonies, as the Hall is primarily for academic purposes. At the back of the platform is a series of stalls constructed of solid oak, for the members of the Senatus Academicus, University Court, &c., with special seats in front for Chancellor, Rector, and Principal. As, however, if restricted to its original purposes the Hall would only be used two or three times a year, Mr. McEwan expressed a desire that its uses should be extended, and that it should as much as possible be made available for civic functions, and for concerts of a high class. Following up this idea, a magnificent organ, probably the finest in Scotland, has been placed in the Hall.

Considerable difficulty was experienced in arranging for the placing of the organ in a

Hall which was never intended for one. Two other sections of the organ are placed high up on each side of the platform recess. All these are enclosed in handsome carved oak cases, gilt and coloured, corresponding to the rest of the woodwork of the Hall. A movable orchestra has been constructed capable of accommodating 300 people. The framework is of light steel, the floor and seats being of wood. It is made so as to fit over the stalls on the platform, and can be taken to pieces easily and as easily put together again.

The Hall is lit by electricity. Before arriving at the present arrangements, a long series of experiments were made by the architect and the electric engineers, Messrs. King and Co., as to the best method of lighting the Hall. The result is considered by all who have seen it to be most satisfactory. A large pendant hangs from the dome; above the cornice, but concealed is a series of lights round the whole circumference of the Hall, and these throw a light on the decoration of the dome. The galleries are lighted by placing lamps concealed behind the pillars and the lower beams of the gallery fronts. The result of this concealed disposition of lamps is that the Hall is lighted without the eye being distracted by numerous small brilliant points of light from the lamps.

The complete design for the Hall included a great tower at the north-west angle, rising to a height of 230ft. The lower part of it only has, as yet, been executed; it has been carried up to the height of the roof of the Hall. The great object of the architect in designing the Hall was not to give it the appearance of a Hall intended to hold the maximum number of people in a given space, but to give it as much of a monumental character as possible consistent with the requirements of a good auditorium.

PUBLIC BATHS COMPETITION AT BETHNAL GREEN.

CONSIDERING how frequently we have to complain of unsatisfactory competitions, it is a pleasure to be able to record one which seems to have been carried out in a thoroughly straightforward manner, and in which, undoubtedly, the best design has won. This competition was limited to six invited architects, and Mr. Shoppee was appointed the assessor. Against this system of limited competitions there is much to be said; it is only justifiable when the best men are selected to compete, and in a case of this sort, where some special knowledge is required, they should be men whose sound general knowledge is supplemented by this special knowledge. The majority of the designs submitted in this competition do not impress us as being the work of men of this description.

The first premiated design under motto "Savon," by Mr. R. S. Ayling, fairly earns its position, and seems to score heavily on almost every point. The design is well balanced, no one part being elaborated at the expense of another. This is the only design in which the entrance to the public laundry is placed at the highest point of the site, and the floor kept level with the street at this point, so as to enable the perambulators with heavy linen bundles to be wheeled straight in, without going up steps—a most important point for the convenience of the public. There is also provided space for the storage of these perambulators, which the other competitors have overlooked. His arrangements for economising the service are good. One pay-box commands the entrances for both men and women to the private baths, and in these baths the attendants are so placed that, when there is nothing much going on, one attendant can look after the first and second class in the baths for both sexes. Again, Mr. Ayling is the only one who places the board-room on the ground floor, with the superintendent's office joining it, and a separate entrance, which should prove a very convenient arrangement. The lighting throughout is good, and the design generally shows more grasp of the requirements than do the others. The elevation is simple and pleasing, and is illustrated by a perspective which seems the sort of thing for a competition, giving a correct rendering of the features, and detail for the assessor, with a certain amount of realistic and pictorial effect for the public.

There is rather a mixture of Classic and Gothic in the detail, but that is the fashion. The bay over the side door is rather obviously put in as a "feature," and, perhaps, the whole of the upper part would stand cutting down. On the plan, the chief fault seems to be the wasted space in the corridor connecting the laundry with the baths. Could not this be done away with, and the cross wall taken straight through, and the arrangements of the bath entrances, etc., be pulled together a bit?

"Red Cross," by Mr. Harner, placed second, has contrived to do without corridors, which is a strong point, but he has wasted space on two pay-boxes when one is enough, and waiting-rooms which are hardly necessary in such a neighbourhood. The amount of space occupied by entrances, waiting-rooms, etc., is out of proportion compared with that devoted to the baths themselves. He has, in consequence, to banish his board-room to the first floor, which is not so good as "Savon's" arrangement. This design is illustrated by a quaint drawing, a sort of cross between parallel perspective and isometrical projection, coloured red, and standing in space. This does not do justice to the design, which is simple, and which might look well in execution.

"Simplicity with Utility" is the best of the remainder. The entrance to the private baths is good, but here again too much is made of the waiting-rooms, two of which depend entirely upon borrowed light. The laundry arrangements, perhaps, tell against this design, with their entrance up a flight of steps direct into a waiting-room. The area, too, is not placed sufficiently central for full advantage to be taken of it, either on this floor or the

A. R. J.

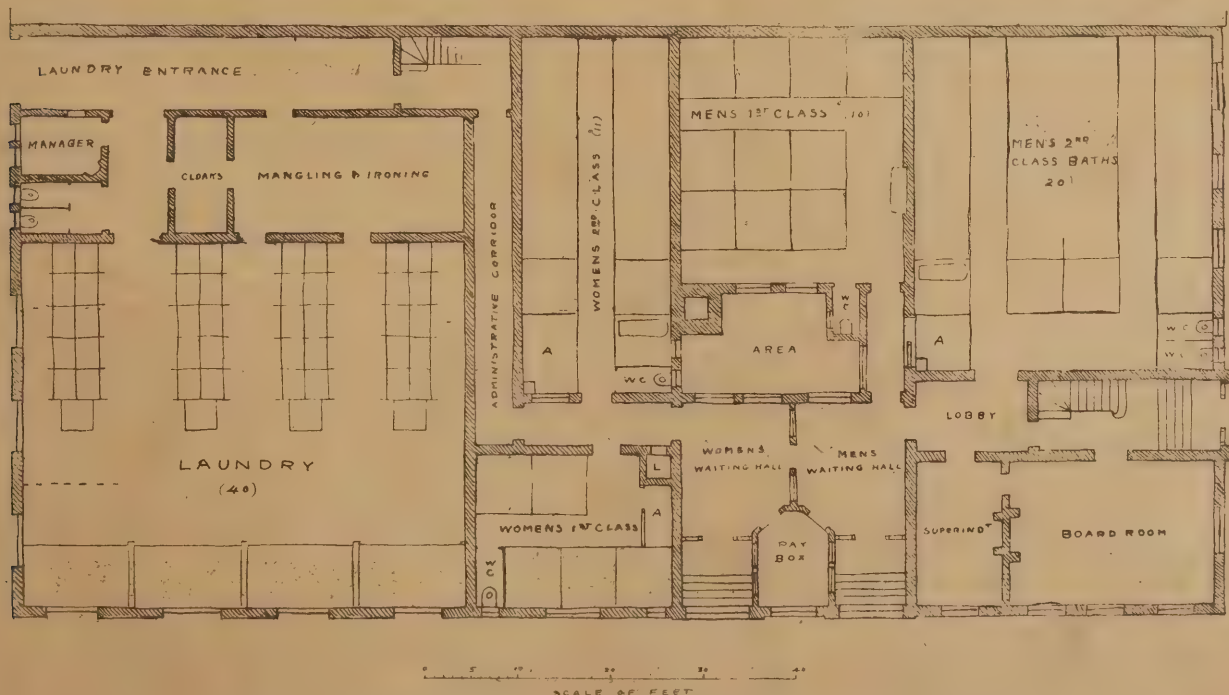
(Continued from page 366.)

* A paper read before the Birmingham Architectural Society on Friday, November 26th, 1897.

THE REPAIR OF WALLS.

THE MORE REASONABLE COURSE

would be to cut the stone back until the virgin stone is reached (which, at the outside, would probably not be more than half-an-inch), and then, after having thoroughly wetted the surface, to bring the stone out to the original face with mortar or plaster composed of coarse, sharp, washed sand, and blue lias lime. This method would be found to be far less costly than renewing the stone, and, besides avoiding



BETHNAL GREEN BATHS COMPETITION. FIRST PREMIATED PLAN. BY R. S. AYLING.

unnecessary jarring of the wall, it would protect the stone from further decay and make a better job in every way by avoiding the hard effect of the newly-inserted stone, and at the same time show, as an obviously necessary repair. With regard to fractured ornamental features, everyone knows perfectly well that a mediæval building cannot have come down to our times free from fracture or blemish, and if the work is seen to be complete, a doubt is at once felt as to how much is original. Such imperfections are the honourable scars of time, and our imaginations unconsciously supply their defects far better than any nineteenth century masonry would supply them. If people desire to complete the design of the building, let them rest after they have completed it on paper. The rightness or wrongness of the restoration on paper can be discussed, and the reasons for and against the restoration can be given. But when once the restoration is put in practice the die is cast and the reasons obliterated. One word about Bath stone. Certainly it is cheap, but unfortunately it has the other quality which goes with cheapness. If one were building in Bath and the neighbourhood, it might be reasonable to use Bath stone, for all will agree that an architect should aim at using the material of the district in which he is building. Bath stone finished with a coarse drag is really offensive and expresses incompetence. The drag is a tool which should be abolished, and if the mason cannot use his chisel he should leave the stone as it comes from the saw. Now as to plaster. It is

SELDOM RIGHT TO REMOVE PLASTER

from either the inside or the outside of walls. We know it was the custom of the old builders to plaster their rubble walling, and sometimes they plastered their finest dressed ashlar. Many people do not believe this, but it is a fact, and it can be proved by the existence of plaster on such works. For example, it can be found on the finely-dressed stonework of the ruins of Waverley Abbey and many other places. It is not necessary to remove all old plaster on the walls of a building because some is rotten, or some has fallen, for it can so easily be repaired. The art of plastering is almost lost, and unfortunately the restoration movement has thrown discredit on plaster in a most unreasonable manner. The old method of finishing plaster in one coat must be adopted when repairing old work, and I hope the day will come when the modern three-coat work will be discarded. You can see what you have got with one-coat work, but with the modern method a failure in any of the three coats means a failure of the whole in the long run. Paint has also been discredited, and one of the most beautiful materials we have—viz., whitewash, is thought so badly of that if you wish to use it you must call it distemper. In dealing with an ancient building it should be remembered that any material not made in our own time is generally better suited to the building than the materials now to hand. The old clear glass made 100 years ago is more in harmony with ancient work than any modern glass. Numbers of ancient churches have been spoilt artistically by having the old glass taken out and modern Cathedral glass put in its place. The result is that not only is the outside of the building spoilt, by all the windows appearing to be glazed with bad ice, but the interior is ruined by a horrid green light being thrown over everything. There are many kinds of modern glass which are made in imitation of old, and by the term "Cathedral" glass I wish to include all of them, including those with a sanded surface, and the violet and yellow ones, too. Some architects have a great liking for putting

ORNAMENTAL LEAD WORK

in the windows, but it seems to be a want of modesty to introduce such fancies. One fine old church which I have attended has had elaborate patterns introduced, which I confess are very clever, but the architect, or more likely his clerk, only thought it necessary to draw half of each pattern, so the glazier traced and turned them over, with the result that all the would-be accidental breaking of the bands of glass come exactly in the same place on

each side. The right thing to do when the leadwork of old glazing is decayed is to have new comes put in without taking the glass away from the building. Paving is another most important item, especially in an ancient church. Any existing pavement which is found in an unrestored church will to a certainty be more in harmony with the ancient building than any modern pavement which could be laid. Hardly any paving can be worse than modern encaustic tiles, especially when they are glazed and of many colours. Cast-iron gratings over hot-water pipes are another source of great annoyance, and the more elaborate the pattern the worse they are. There is no reason why old floors should be discarded because they are uneven. They can be taken up and relaid on a good bed of concrete. It is very important that a thick bed of dry rubbish should be put under the concrete, otherwise the cold ground will cause condensation on the pavement. It would be impossible for me even to name all the points which come up when repairing a building, in a short paper, for it would mean writing a lengthy specification. I will, therefore, in conclusion say a few words about roofs. Oak was practically the only material used in England in the middle ages, for the use of chestnut is to my mind a myth. Sapwood of oak nearly always decays—i.e., it is readily attacked by worm. Therefore great care is needed

WHEN EXAMINING ANCIENT OAK

to avoid being deceived by its decay. I have myself used the argument of a gimlet—which I can recommend. Your attention is called to a sadly-decayed timber; you put your gimlet into it, and find that after it has penetrated a certain distance it stops dead, and nothing will induce it to go further. Of course, the heart of oak does decay if exposed to intermittent wet, or if boxed up so that the air cannot get to it freely. My examination of ancient buildings has decided me never to build any timbers into modern work. Timber work can obviously be more easily repaired than any other form of building, for you can not only splice and scarf new timber on to old, but you can with ease strengthen it to almost any extent with iron. Whether mediæval builders were right or wrong in putting on span roofs without tie-beams we need not decide, but we are certainly right in adding tie-beams or tie-rods to every such roof that shows signs of weakness, and also under no circumstances are we justified in putting on an old building any roof which gives a thrust to the walls; in other words, our wall-plates ought always to be coupled either by tie-beams or tie-rods. As to roof coverings, slate seems to be out of the question just as much as corrugated iron is. The day may come when slate will again be used properly, but until that time comes I consider it out of court; in any case slate is inharmonious with an ancient building. It is undesirable to use thatch unless reed thatch can be used, and the more I see of good reed thatch the more highly I think of it as a roof covering. Broseley tiles are almost as bad as slate, but a reaction has set in against them, and hand-made tiles are beginning to come into use again. They are not made quite so well as they used to be, for in order to avoid their twisting in the fire they are given too little heat, and they are apt to be made too thin. We have distinctly made an improvement in our methods of hanging tiles by the use of galvanized iron pegs. Copper nails are apt to prove too weak; but we ought to get aluminium pegs. Had the old builders used them instead of oak pegs many a roof would be as good now as when first hung. The oak pegs decay and break or shrink and drop out. You will understand when I mention slate that I do not wish to include stone tiles, which really make

ONE OF THE FINEST ROOFS IN EXISTENCE.

The stones cannot be too big, for as they increase in size they increase in thickness and raggedness. Provided they are hung with substantial metal pegs and the roof is strong enough to carry them, they can hardly be surpassed for durability. A milled lead roof

is a poor thing. There can be no doubt that the nature of the lead is harmed by milling, but I am strongly inclined to believe that one of the reasons why milled lead is so unsatisfactory is that the metal used is inferior. A practical workman who casts lead in London told me the other day that they had found they could not use old milled lead to re-cast as in many cases it was such inferior metal as to spoil the whole casting. Cast lead, on the other hand, if laid properly (a big "if," I admit), will last almost for ever. The roof which has recently been laid on the nave of Winchester Cathedral is such a roof. The points to observe are that the sheets should be small, that they should be thoroughly secured without binding the lead, so as to tear by expansion and contraction. There is a great art in casting lead, and this at Winchester was exceptionally well cast. There is also, of course, the copper roof and the asphalt flat roof, which, in my opinion, if laid properly on thick concrete, is the most durable roof the world has ever seen. Having taken the main points in a building, any one of which would, of course, be sufficient to form the subject of a paper, let me say a few words with regard to those who first started the restoration movement. Until the experiment had been tried and thought out in all its bearings, those who practiced it could not be blamed. At the same time its evil results might have been seen and recognised sooner than they were. Every artist condemns a restored building; every historian that goes to buildings for his facts condemns restoration. It falsifies history, it debases Art.

NEW HOTEL FOR HARROGATE.

A SCHEME has been propounded with the twofold object of providing Harrogate with a first-class palatial hotel, and of opening up the Spring Bank Estate. A small syndicate, headed by Mr. J. J. Bell, of Harrogate, formerly of Newcastle, have purchased from the trustees of the late Messrs. Carter, for £20,000, an area of nine acres of land which adjoins the Spa Estate (now the property of the Harrogate Corporation), and located between Ripon Road, Spring Bank Avenue, and Alexandra Park, as the site for the Palace Hotel. The hotel is to be erected upon the most improved principles, and fitted up with all the best and latest necessities and requirements; it will have 300 bedrooms. The area set apart for the building and the grounds will be nearly seven acres, and the elevation of the hotel will be to Ripon Road, Spring Bank Avenue, and the Spa grounds, with the principal façade in the direction of the new Royal Baths. The main entrance will be directly opposite Swan Lane, but a short cut will be available, with an outlet at the lower corner of the estate, close to the old skating rink, and opposite the George Hotel, where an entrance lodge will be erected. This arrangement will give a nearer approach to the town. The present Spring Bank House will, in course of time, be demolished, and a number of villas, in the Early English style of Architecture, will be erected on the higher portion of the estate, to face Ripon Road and Spring Bank Avenue. The work of erecting this large establishment is to be commenced in the early spring, but already the surveying of the land has been taken in hand, and London architects will be invited to send in competitive designs. In addition to the large number of bedrooms mentioned above, and the usual dining and other rooms, special features will be the ball, recreation, and reception rooms, a large hall, lounge, and winter garden, library, suites of private rooms, with baths and lavatories, suites of invalid rooms, with servants' rooms, &c., with special attention to ventilation, lighting, telephones, &c.

BETWEEN thirty and forty Romano-British bowls, dishes, cups, jugs, and platters, of pewter, with incised ornaments, have been discovered at Appleshaw, near Andover, on the supposed site of a Roman villa.

R.I.B.A.

A FESTIVE CELEBRATION.

A FESTIVAL dinner, in commemoration of the sixtieth anniversary of Her Majesty's accession and the incorporation of the Institute, was given on Thursday evening at the Hotel Metropole by the Royal Institute of British Architects. The president, Professor G. Aitchison, A.R.A., was in the chair, and amongst the

Gilbert, R.A., Professor Corfield, Mr. Rudolf Wicks, and Sir G. Hayter Chubb.—The President, in proposing the loyal toasts, mentioned that the Royal Institute of British Architects owed a peculiar debt of gratitude to Her Majesty, for it had been made the chooser of

THE GREAT ARCHITECT OF THE DAY

of any country on whom Her Majesty bestowed her gold medal.—The Bishop of London, responding for the House of Lords, claimed

House of Lords afforded a graceful way of doing it, and in that way it had a distinguished function to discharge in the Constitution. What the House of Lords aspired to do was by its independent position to render its advice on measures inaugurated in the House of Commons. So long as it did that, with the gravity and wisdom and consideration and attention to business which characterised its proceedings, it deserved, and he thought received, the approbation of the English

St DAVIDS CHURCH EXETER

DESIGN PLACED SECOND IN COMPETITION

Harbottle Reed Architect Exeter.



company, numbering about 180, present were the Lord Mayor, the Bishop of London, Dr. Collins (chairman of the London County Council), Sir E. J. Poynter, Mr. W. Ellison Macartney, M.P., Mr. Hugh C. Smith (Governor of the Bank of England), Sir H. Howorth, M.P., Mr. J. Macvicar Anderson (vice-president), Sir J. Wolfe-Barry, Mr. Ernest George, Sir W. MacCormack (President of the Royal College of Surgeons), Mr. W. Godden (President of the Incorporated Law Society), Mr. Bousfield, Q.C., M.P., Sir W. B. Richmond, R.A., Mr. A.

that that institution had a remarkable educational influence upon its members. A man in the House of Lords felt if he had nothing to say, he had much better say it. Besides the educational effect it had upon its members, the House of Lords had a distinguished place in the Constitution. It was inevitable in party government that sometimes a party should commit itself unwittingly, to a programme which it was not able to carry out, and yet when once a party had raised a cry it was exceedingly difficult for it to drop it. The

people.—Mr. Macartney, M.P., responded for the House of Commons.—Mr. Aston Webb gave the toast of "The Lord Mayor and Municipal Corporations," and the Lord Mayor, acknowledging the toast, said he was always ready to join the hand of friendship with the County Council. The City's was an ancient corporation, and they should be glad when the County Council became a similar institution. But it must take time, and that time had far better be occupied by attending to the business of the County of London than by

attempting to destroy the old City of London. A great calamity had overtaken the City of London, and it was important to the citizens of London, as well as to the Profession of Architects, that something should be done in order that such catastrophes should not occur in the future with so much ease as in the recent instance. He hoped before many days were over that the Corporation would be able to make some suggestions, but, for his own part, as head of the Corporation, if any one connected with the Institute could give him any suggestions which he could lay before the Corporation he should accept them and submit them to the Corporation with the greatest amount of pleasure.—The President, in a graceful speech, proposed "Art, Literature, and Science," coupling with it the names of Sir E. Poynter, Sir E. Maunde Thompson, and Sir J. Wolfe Barry.—Sir E. J. Poynter, P.R.A., replied for Art.—Sir E. Maunde Thompson, speaking on behalf of Literature, observed that it was one of those subjects which, in these days, ought to be responded to by a syndicate. It was a question whether literature was not at present too healthy, and whether she would not be the better for being placed on a lower diet. He had a wider acquaintance with the outside of books than with the inside, and he could almost weep to see much of the best literature of the forties and the thirties all lying on the shelves of the British Museum, and no one referring to them. His only consolation was that the paper was so abominably bad that the final dissolution must soon come to save posterity from a monstrous amount of literature. There was this consolation at the present time, that though there was this great mass of literature they were not bound to read it. In fact, his experience was that each one of them was so

BUSY WRITING HIS OWN BOOK

that he did not dream of reading anybody else's. It was the age of one man one book.—Sir J. Wolfe Barry said an application of Science which called for very great attention in this great City was that which had been alluded to by the Lord Mayor, in trying to make the great congested mass of houses in the City less susceptible to the ravages of fire. It had been his business to visit the scene of the great fire, and one could not help being struck by the fact that there must be some great fault in the construction of modern buildings that they should fall down and be destroyed in a few hours from a fire which, he supposed, if attacked in the first half-hour of its origin would have had no great danger to the surrounding houses. Art had much to learn from science, but science had something to learn from Art, and for himself he could not see why things which were useful and served a distinct utilitarian purpose should necessarily be ugly. Engineers might with great advantage study some of those great principles of beauty with which the architect's profession was more particularly concerned.—Dr. Collins, Chairman of the London County Council, proposed "The Royal Institute of British Architects and allied Societies," and took occasion to express some surprise that architectural science had not received greater recognition in the Universities. Architecture, as a German philosopher had phrased it, was "frozen music"—harmony crystallised into form. He hoped it was not too much to dream of a municipal school of Architecture in London.—The President suitably replied, and this brought the speeches to a close.

A PROPOSAL is on foot to erect a memorial in Godalming to James Inskipp, whose paintings contain many Surrey scenes. Inskipp lived for several years in a cottage in the Cotteshall Lane, Godalming, and it has been suggested that a memorial tablet should be placed outside.

WE are informed that the firm of George Farmiloe and Sons, of 34, St. John Street, West Smithfield, E.C., has for family reasons been registered as a limited company, under the style of "George Farmiloe and Sons, Limited." The management continues the same as heretofore.

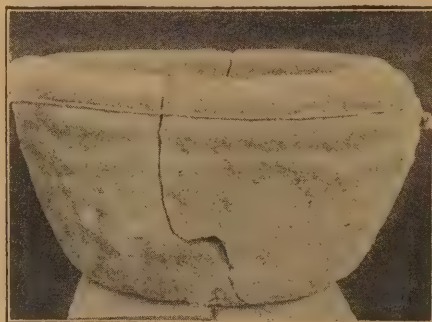
Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 8th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

MR. TATE has given instructions to the builders (Messrs. Higgs and Hill) to at once proceed with the work of completing the Gallery of British Art according to the original design of his architect, Mr. Sidney Smith. This work, which will occupy about eighteen months, will considerably more than double the size of the existing building, and give



PAIGNTON CHURCH, DEVON. FONT BEFORE RESTORATION, 1897.

much more space for picture-hanging, in addition to which two large rooms will be devoted to sculpture.

It is not only in theatres and other places of public entertainment that precautions against fire and panic are not always all they should be. Some of our churches are almost as great offenders, as was seen the other day when the accidental bursting of a steam-pipe, combined with fastened doors, came near to causing a serious panic. Now a correspondent draws attention to the case of a Congregational church in London, at which the most reckless disregard is shown for the safety of its frequenters in the event of fire or panic. The preacher is popular, so every seat is commonly filled, and when this is the case late-comers are accommodated with seats down the aisle, which is packed with chairs for their use. As our correspondent says, "In case of panic, could any instrument of torture be more effectual than chairs, for not only blocking the way, but for breaking necks, backs, and limbs, or for giving the victims a surer 'happy despatch'?" It is all very well to preach to people to keep cool and sit still under these circumstances, but neither preacher nor officials, nor congregation would be likely to act on the advice." Theatres and music-halls have been compelled by the County Council to put their houses in order, and not before it was time; perhaps the Council might advantageously turn its attention to the churches.

A REMARKABLE and rather startling statement is made by Canon Scott Holland in a Church contemporary. In discussing the building of St. Paul's Cathedral, he says:

"Wren took enormous trouble to knock down the old building and lay the foundations afresh. He said he was building for eternity, and went down 60ft. at a dangerous corner before he could reach the ground that satisfied him. He also placed the foundations at another angle of the building from the old, in order that he might get them dug afresh, and was always afraid lest the drainage of water might shift the gravel. Hence our terror of electric railway stations." Canon Scott Holland adds:—"The building has moved slightly, and is moving still. Some settlements must have occurred very early, leaving cracks that have to be watched. Wren was a superb builder and engineer, but he introduced an immense mass of iron clamps to hold the stones together, which has proved a frightful difficulty. It rots the stone. For years we have been compelled to remove it, and we have more work ahead of this kind."

At last the County Council is moving to secure the much-needed improvement in Southampton Row. A wide thoroughfare from the Strand to Holborn is really wanted, and has long been talked of; but any improvement is better than none, and in the meantime the plans of the Council seem to provide for great relief of the traffic even without a continuation of a widened thoroughfare to the Strand. Not only is the Improvement Committee authorised to acquire the property between Southampton Row and Kingsgate Street for the widening of the former road; but it is empowered also to acquire a block of property at the south-west corner of the Row. This points to the probable construction of a semi-circular opening of the greatly widened street, so that the traffic from the north may turn freely eastward into Holborn, or westward towards Oxford Street, without aggravating the present block at the crossing to and from Little Queen Street. This relief alone would justify the acquisition of the property at a favourable moment before the new leases are negotiated with the present tenants. But the larger scheme of a continued thoroughfare to the Strand ought not to be delayed. Such a thoroughfare is one of the pressing needs of London.

THE ancient parish Church of All Saints, Dovercourt, situated in the picturesque seaside suburb of Harwich, is now under restoration. It is a very ancient structure, having been granted by Alberic or Aubrey de Vere (Lord Chamberlain to His Majesty) to the Abbey of Colne in the time of William the Conqueror. This grant was afterwards confirmed by Henry I. in the year 1111. Until recently, on account of the modern battened-out walls and flat ceiling, the church has presented an "unadorned and barn-like appearance"; but as it was found absolutely necessary to re-tile the roof and repair the walls, it was very wisely decided to endeavour to restore the church to somewhat of its original character by removing the battened walls (erected in 1811) and opening up the roof, so as to show again the handsome carved oak "collar" beams and rafters which were known to be hidden up. In doing this work it has been discovered that the walls of the nave were originally "frescoed" all over, apparently at a very early age, for the frescoes are covered with a layer of plaster, upon which texts and the Lord's Prayer are written in the old black letter writing of the fourteenth or fifteenth century. The age when this was done is clearly defined by the device of a Royal cap with crossed feathers and the name of King Henry IV. over the principal doorway. This letter writing is again covered with more lettering of more recent date, and this again was obliterated by being whitewashed over, as, indeed, was the whole church, including the fine oak rafters and beams. It is feared that the frescoes and old lettering are both too far gone to restore, but every effort is being made to preserve, if possible, this evidence of the work of centuries ago.

ANOTHER interesting feature of the restoration of Dovercourt Church is the unveiling of the old spiral staircase built in the north walls of the nave and leading to the rood

which, in its day, was a very famous one, whose supposed "sanctity drew from far and near unto it many votaries and devoted pilgrims with their offerings" (see Dale's "History and Antiquities of Harwich and Dovercourt," published in 1732). This rood, was stolen from the church in 1532 and burnt on Dovercourt Green, the miscreants afterwards being put to death for their sacrilege. There has been disclosed, too, an ancient piscina in the south wall of the nave, evidently used in connection with a side altar placed immediately outside the screen. There is also to be seen within the church one of the original poor-boxes with the date on it (1589); also a Norman font not long ago taken from an adjoining farmyard, where it was used as a drinking-trough for cattle.

In connection with the appeal for funds towards the restoration of the Dovercourt Church, Mr. Thackeray Turner (Secretary of the Society for the Protection of Ancient Buildings) writes:—"My committee desires that you will allow it to ask all contributors to the funds to urge the importance of not replacing the old hand-made tiles on the roof by modern machine-made tiles. The Committee's reason for making this request is that new machine-made tiles are not as durable as hand-made tiles, which have proved themselves capable of withstanding the weather, and, of course, everyone knows that the hand-made tiles are by far the most beautiful, and certainly more in harmony with an ancient building."

In response to a representation made by about 70 of the beneficed clergy of London, the Cowley Fathers have arranged to open a branch house of the Society of St. John the Evangelist, in Westminster. The site purchased is on the west side of Dartmouth Street, Westminster, close to that on which new offices, the property of the Universities' Mission in Central Africa, have lately been erected, and is occupied by four houses. These it is proposed to demolish, substituting a building designed by Mr. Henry Wilson, of Gray's Inn Square, and estimated to cost about £9000, exclusive of furniture and church fittings. Of this, the main portion will comprise accommodation for a few resident members of the Society, with cells for receiving about 25 visitors, lay or clerical, during retreats, a small private chapel, refectory, library, visitors' room, waiting-rooms, and all necessary offices. Across the rear of the whole will be placed a chapel, having separate access from the outside, and seating about 140 persons, to be used for retreats, meditations, instructions, lectures, and other special purposes of the mission.

The new American National Gallery is one of the finest buildings which adorn the city of Washington. Externally the structure is of a noble and imposing character, and the site selected is one which enables the grand proportions of the edifice to be fully appreciated. The grand staircase, rising from the entrance hall, is designed on magnificent lines, and the building throughout will, when completed, be a worthy repository of the priceless treasures to be deposited within its walls. The public reading-room is, so far as its architectural arrangements are concerned, modelled on much the same principle as the reading-room of the British Museum, but the readers' desks, instead of radiating from the centre, are arranged around the librarian's office in a circular fashion. This plan seems, at first sight, hardly as convenient as that adopted at our museum. The Washington library has, however, much more space at command, and therefore the economy of a few square yards of floor area is a matter of little or no moment. The decoration of the interior walls will occupy some considerable time, but in the meantime the work of removing the National Library from the Capitol to the new building is going on incessantly, and it will be another month or so before the last of the books is safely shelved in its new home. The new building, which covers three acres of ground, is estimated to cost six million dollars, but this sum

will, no doubt, be largely exceeded by the time all the decorative work is completed.

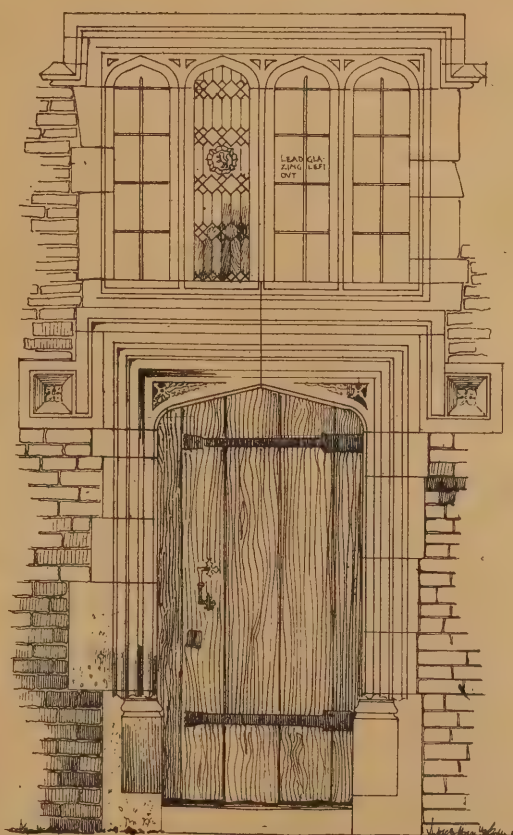
THAT extraordinary shrine, the grotto of Lourdes, is to be reproduced in the Church of Our Lady of Lourdes, in Brooklyn, which is now being rebuilt at a cost of over £40,000. The original is to be reproduced in every detail, both as to proportions and arrangements. There will be huge rocks surrounding the grotto, and in a deeper recess will be a life-size statue of Our Lady of Lourdes. Inside the grotto will be a small altar, a fac-simile of the original, while even the surface of the rocks will be artificially blackened to represent the smoke from the countless candles offered by pious pilgrims. The grotto will rest above the graves of the priests who have served the parish and died, the church having been built immediately above the tombs in which their bodies have been laid.

In the House of Lords the appeal of the Vestry of St. Matthew, Bethnal Green, against the School Board for London was heard. This was an appeal from an order of the Court of Appeal affirming an order of the Queen's Bench Division directing a writ of *mandamus* to issue directed to the vestry of the parish of St. Matthew, Bethnal Green, commanding it to maintain and from time to time to repair a certain conduit for drainage which passes through land purchased by the School Board for London. The facts of the case were these. In July, 1894, the School Board for London acquired the freehold of certain lands situated in the appellants' parish, which included a street known as Tyrrell Street, in which were certain houses. Previously to 1866 these houses had no drains, but in that year a line of pipes was laid by the then owner of the houses to carry the sewage to the sewer belonging to the appellants. No evidence was forthcoming of any notice in writing having

been given by the owner of the houses of his intention to lay the line of pipes, or of any order of the vestry in relation thereto having been made. In the Queen's Bench Division and in the Court of Appeal it was found as facts that the vestry knew and did not disapprove of the connection of the line of pipes with the sewer vested in the vestry. The question raised was whether in these circumstances the line of pipes constituted a drain which the respondents would have to repair, or whether it was a sewer which the appellants were bound to repair. The Queen's Bench Division held that the line of pipes constituted a sewer, and issued a *mandamus* commanding the vestry to repair it, and their decision was affirmed by the Court of Appeal. The vestry appealed, but the appeal was dismissed.

THE doorway illustrated on this page is situated in the inner courtyard of the fine old Warwickshire house of "Compton Winyates," one of the seats of Earl Compton. The house was erected in the seventeenth century, and contains many interesting features and much very good detail.

THE new lighthouse at Penmarch, on the Breton coast, erected as a monument to Marshal Davoust, is now completed. The funds were provided by the Marshal's daughter, the Marquise de Bloqueville, who left a sum of 300,000 francs to erect and provide for the maintenance of a lighthouse as a memorial of her father. She desired that the tower should be known as "The Eckmuhl Lighthouse"—the Marshal having been created Duke of Eckmuhl by Napoleon I. This idea of erecting a lighthouse as a monument of a great man might be appropriately copied in the case of our famous sailors or discoverers, for whom a lighthouse looking out over the waves from some bold headland would be a more fitting, and at the same time a more useful,



COMPTON WINYATES
WARWICKSHIRE



DOORWAY IN
COURTYARD

SCALE OF FEET

DRAWN BY H. INIGO TRIGGS.

memorial than a soot-begrimed statue in a city square or street.

No sooner has the work of destroying the old Bell Hotel, at Bromley, in Kent, been proceeded with (writes an artist correspondent) than the fate of another picturesque hostelry in the neighbourhood has been decided on. This is the Crown at Plaistow—a diminutive inn which is said to have been erected no fewer than four hundred years ago, and which will cease to exist when the new building, now in course of construction, is completed. There is little of interest about the place beyond its great age, but it gives a very good idea of the sort of inn our forefathers had to be content with. Sundridge Park, too, is quite close, and here is the curious rock-like collection of oyster shells which geologists have found so difficult to account for.

THE Yerkes Observatory is more symmetrical than most buildings of a like nature. It has the form of a Latin cross, the great dome is at the western extremity of the longer axis, and there are two smaller domes at the northern and southern ends of the arms. The great dome has a rising and falling floor, a necessary feature when working with a telescope of sixty-two feet focal length.

MR. MARK H. JUDGE, A.R.I.B.A., Fellow of the Sanitary Institute, writes: "Had I not read it above his name in the Times, I would not have believed that Sir Arthur Arnold would have made himself responsible for the statement 'that the [London County] Council has no more to do with the house drainage of Kensington than with that of Birmingham.' Section 39 of the Public Health (London) Act, 1891, provides that 'The County Council shall make bye-laws with respect to water-closets, earth-closets, privies, ashpits, cesspools, and receptacles for dung, and the proper accessories thereof in connection with buildings, whether constructed before or after the passing of this Act.' 'It shall be the duty of every sanitary authority (of which the Kensington Vestry is one) to observe and enforce the bye-laws,' and 'the County Council, on it being proved to their satisfaction that any sanitary authority have made default in doing their duty under this Act . . . may institute any proceedings and do any act which the authority might have instituted or done for that purpose.' The powers thus given to the London County Council do not extend to Birmingham."

Apropos of the great masonic service by which the 200th anniversary of the re-opening of St. Paul's Cathedral was celebrated on Thursday last, it may not be generally known (says a correspondent) that the famous hostelry in the churchyard where the Lodge of Antiquities, of which Sir Christopher Wren was Master, used to meet, was none other than the "Goose and Gridiron," which was demolished not long since. This old-world tavern, which was supposed to occupy the site of the still more celebrated "Mitre," which was the first music-house in London, stood in London House Yard, where, during the building of the Cathedral, Sir Christopher and his masonic brethren were wont to assemble. To this Lodge the distinguished architect presented the mallet and trowel which was used in laying the foundation stone of the mighty edifice in 1675.

DURING the course of some excavations near the Great Turnstile, Holborn, for the purpose of laying telephone wires, some workmen employed by the National Telephone Company made an interesting discovery about 5ft. below the surface, and brought to light what first appeared to be trunks of trees, which had evidently been lying beneath the ground for a great number of years. Upon being closer inspected it was found that the trees were bored through, and, according to experts, these had been used in connection with the water supply before the introduction of iron tubing early in the last century.

THE Improvements Committee of the London County Council have submitted to the Council

a specification of lands upon which it is proposed to place an improvement charge in connection with the widening of the Strand at Holywell Street. The committee state that in compliance with the undertaking recently given by their chairman they had considered the desirability of recommending the Council to forgo "betterment" as already authorised by Parliament, and to seek Parliamentary powers for the acquisition of the freehold and long leasehold interests in the property to the north of Holywell Street with a view to recoupment, the other interests in the property being allowed to run out, Wych Street being widened, and the new northern frontage of the Strand being brought down in front of the present northern frontage of Holywell Street. They have had a plan prepared showing the effect of widening Wych Street to 40ft., and the Strand to 100ft. between the two churches. It did not appear to them, however, that it would be wise to bring the new northern frontage to the Strand down lower than the present northern frontage of Holywell Street, having regard to the fact that it had not been decided either to set back the Strand on the northern side of St. Mary's Church or to remove the church. Moreover, it was very doubtful whether Parliament, merely to save expense to the Council, would authorise the acquisition of the freehold and long leasehold interests as suggested. The only other result of the alteration would be the widening of Wych Street between St. Clement's Dane's Church and Newcastle Street. They had been unable to separate the freehold and long leasehold interests from those of trade occupiers, as it was not practicable to obtain particulars with respect to the length of the leases. In some cases the freeholders occupied the premises for business purposes. They were advised that in that instance it was not probable that any large sum would be saved by allowing the short leases to run out. From estimates which had been prepared it appeared that the net cost of the altered scheme, upon the ordinary basis of calculation adopted in connection with improvements authorised by Parliament, would be, after allowing for recoupment, about £15,000 in excess of the estimate of the cost of widening the Strand as already sanctioned by Parliament, including the levying of an improvement charge. In addition to the increased cost, it should be remembered that the necessary compulsory powers which would be required, if the altered scheme were adopted, could not be obtained before the autumn of 1899, it being now too late to take any steps with a view to an application in the next session of Parliament. After full consideration of all the facts, they were of opinion that it would be highly undesirable that the Council's power of imposing an improvement charge, as already authorised by the Improvements Act 1897, should be abandoned, and they had accordingly resolved to advise the Council to affix its seal to the improvement charge specification. The Council's seal was accordingly affixed.

THERE is on exhibition in the Egyptian Department of the British Museum, the lower portion of what was, doubtless, once one of the finest statues of later Egyptian Art. The statue represents a person kneeling, holding in front a sistrum ornamented with the head of the goddess Athor, a deity largely worshipped at Denderah, where the remains of a large temple, dedicated to her by Caesar Autocrator, are still to be seen. The person represented appears to have been a priest, judging from the remains of a long robe which is to be seen on one side. The base and sides are ornamented with hieroglyphics containing a prayer to Athor and Isis. The statue is made of granite, which stone was often used by the Egyptian artists of about the third and fourth century before our era. This object belongs to the class known as funeral statues, and are mostly found in the ante-chambers of the tombs at Thebes and elsewhere.

AT Torre Annunziata, the village abutting on the site of Pompeii, an ancient mosaic has been discovered in good preservation; repre-

senting a man holding a scroll, and discoursing to four seated figures, one holding a globe, another with his chin supported by his hands in an attitude of deep thought. A pillar, on which is a sundial, stands in the background, and behind are the roofs of a city, above which rises an acropolis, which possibly may be intended for Athens. The teacher's head is bald, and the scene is undoubtedly laid in a school of philosophy.

THERE was a tremendous gathering of the brethren at St. Paul's Cathedral on the 2nd inst., on the occasion of a special masonic service to celebrate the bi-centenary of the re-opening of the Cathedral. One of the processional hymns was Dr. J. M. Neale's famous "Blessed City, Heavenly Salem," sung to a Gregorian tune, the third verse of which has a peculiarly architectural ring:—

"Many a blow and biting sculpture
Polished well those stones elect,
In their places now compacted
By the Heavenly Architect."

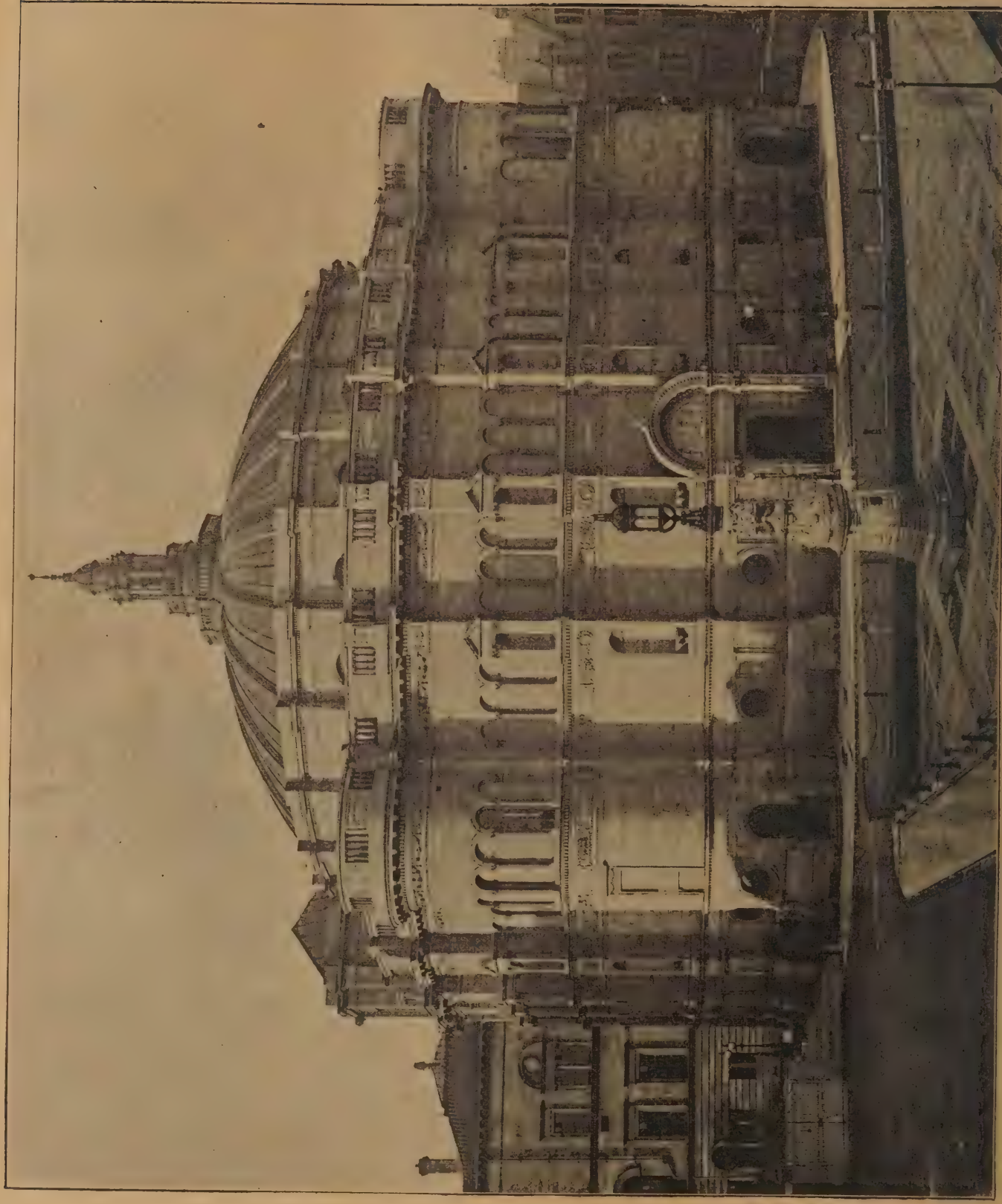
St. Paul's Cathedral cost in the building exactly £747,954 2s. 9d. This sum was raised partly by private subscription, the King setting aside a large sum to be paid out of his private purse. It is slightly doubtful, however, if he ever paid it. The remainder of the amount was raised by a duty on coals. There have been three erections, and the present one has been so far the most fortunate. Both its predecessors were burnt, not once but many times. Letters patent for the rebuilding of the present Cathedral were issued in 1673, and Christopher Wren himself laid the foundation-stone on June 21st, 1679. The Cathedral was finally completed in 1710.

THE thirtieth annual prize distribution of the North London and Borough of Hackney School of Art took place on the 3rd inst., Prebendary Shelford presiding. The annual report, read by the hon. secretary, Mr. C. C. Paine, stated that the efficiency of the institution was fully proved by the excellent results gained at the examinations—both those of the Department of Science and Art and of the London County Council. In the Government examination 76 per cent. were successful, with 36 per cent. first class, while the numbers successful for the whole of the kingdom were only 64 per cent., with 29 per cent. first class. In the London County Council's examination nine scholarships were gained. The prizes were distributed by Mr. Onslow Ford, R.A.

THE report of the committee appointed by the Board of Trade to inquire into the system of ventilation of tunnels on the Metropolitan Railway has been issued. The committee state that by far the most satisfactory mode of dealing with the matter would be by the adoption of electric traction. The committee consider the ventilation of the tunnels by means of fans would be practicable, but state that in view of the probable adoption of electric traction in the near future it can hardly be expected that the Company will incur the expense of at once providing artificial ventilation, and that if they did it would probably deter the more satisfactory solution of the question.

THE first sod of the South Wales Direct Railway has been cut. The new line, which is being built by Sir Weetman Pearson for the Great Western Railway Company, will be 33½ miles long, from Wootton Bassett to Patchway, including Filton loop and the junction loop with the Midland Railway near Yate. By means of it the distance by rail from London to Newport (Monmouthshire) will be reduced to 132 miles, as compared with 143 miles via Bath and Bristol, and 158 miles via Gloucester. The construction will involve the making of three tunnels; the first, through the Cotswold between Acton Turville and Chipping Sodbury, being two and a half miles long; the second near Alderton, quarter of a mile; and the third, near Wootton Bassett, an eighth of a mile. Four viaducts and about 100 bridges will be constructed, and there will be seven stations.

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EXTERIOR OF MCEWAN HALL. FROM A PHOTO. BY ALEX. A. INGLIS, EDINBURGH.



McEWAN HALL. INTERIOR. SHOWING GALLERIES. FROM A PHOTO. BY ALEX. A. INGLES, EDINBURGH

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THE PLANNING OF HIGH SCHOOLS FOR GIRLS.

By J. OSBORNE SMITH, F.R.I.B.A.

DURING the past twenty-five years a goodly number of high schools have been established, and for a lesser number special buildings have been erected. The requirements have naturally grown, and experience has, as usual, taught many valuable lessons to all concerned. High schools, I may remind you, are superior day schools for girls of all classes above those provided for by the elementary schools. There were no high schools twenty-five years ago: the word "high" was not applied to schools until the incorporation of the Girls' Public Day School Company Limited, in June, 1872. The starting of this Company to establish and maintain in London and the provinces superior day schools forms an epoch in the education of the larger half of the inhabitants of England. It was an attempt to meet and correct the defects pointed out in the report of the Schools' Inquiry Commission, which were "Want of thoroughness and foundation; want of system; slovenliness and showy superficiality; inattention to rudiments; undue time given to accomplishments—and these not taught intelligently or in any scientific manner; want of organisation." The first high school was opened in January, 1873, at Chelsea, in an old house adapted for the purpose. There are now thirty-four schools belonging to this Company, and various others have been established by limited liability companies, which were formed usually to establish individual schools.

EXISTING BUILDINGS,

more or less adapted for the purpose, formed the first homes of many flourishing schools now housed in buildings, the planning of which is based upon the knowledge thus gained. Work carried on in buildings originally erected as private residences, or for other purposes, revealed almost hourly weak places where time was lost, where adequate supervision was impossible, and where it was hopeless to combat the evils attendant upon temporary and ineffective means of ventilation, low and small rooms, narrow staircases, weak floors, falling ceilings, small and dark cloak-rooms, small fireplaces, insufficient light, and numerous other defects. These drawbacks to effective teaching were well remembered, discussed, and digested whenever a new home was in view, and the new school-house, planned and erected for a definite purpose, became at once an added pleasure to the daily lives of both mistresses and pupils, and an effective aid to education. It is difficult to find existing buildings suitable for high schools, or that can be made efficient without great expenditure; this sometimes leads to two or more houses (not necessarily adjoining) being occupied by one school—a most trying arrangement for the teaching staff. To follow in detail the growth and development of these schools in the

ADAPTED BUILDINGS

would make an interesting paper by itself. I propose to dwell upon the types of plans which experience has proved to be best suited for the work which is carried on in high schools. One of the most prominent characteristics of a high school should be cheerfulness—produced by ample lighting, plenty of sky visible, possibility of the sun himself being able to peep into every room, pleasing wall surfaces, good pictures, &c. All these, except perhaps the last, form a part of the design, and if the architect will make tempting provision for hanging pictures in suitable positions, the pictures will soon follow. Gloom, semi-darkness, and all the opposites to bright airiness should find no place where children are being taught. Spaciousness, too, is an important quality to secure; ample floor space is here meant—not loftiness. Class-rooms need not be lofty to be healthy; an excessive cubic space above the pupil's heads makes ventilation and warming more difficult, and is simply inclosed space in the wrong place. It is obvious, also, that inasmuch as it is found

desirable to limit the number of children in a class in these schools to thirty or forty, the floor space must be limited to dimensions which will enable the mistress to keep the pupils well under control, to speak to them all effectively without strain, and have access to each desk without disturbing the pupils at adjoining desks. These considerations, as well as those of access to the room, space for and around the mistress's desk for teaching apparatus, &c., must be regarded as determining the extent of floor space, even when it is not urgently necessary to keep always in mind the cost of every cubic foot of space you may wish to inclose. When the room is warmed by the usual open fireplace, the best position for that cheerful, if wasteful, contrivance must not be overlooked, because it also demands a portion of the available floor space. The relative

POSITIONS OF THE DOOR AND FIREPLACE

in relation to the windows deserve more consideration than is usually given. Waste of space necessarily arises where both door and fireplace are not situated at the end of the class-room occupied by the teacher. It is not convenient for the fireplace to be in the centre of the end wall; sometimes it may be well placed near the door. The corner of the room on the right hand of the teacher is a position with many advantages. The fireplace should contain some form of ventilating or warm air producing grate, with fresh air brought to it from outside well above the ground, all inlets being short, and accessible for cleaning; the air chamber for warming the incoming air ought also, for cleanliness' sake, to be readily accessible. In large rooms, or where there are two or more external walls, it is sometimes found desirable to supplement the fire by hot-water pipes under the windows, or along the wall opposite to the mistress. Open fireplaces should not be omitted from schools of this kind without very full and serious consideration of the means to be employed to warm and ventilate the buildings, and especially the class-rooms. In a form of class-room for thirty pupils, which from its frequent use may be accepted as convenient both in shape and size, the allowance of floor space per pupil is 13ft. 6in. super (or 13'65ft., to be quite accurate), and the cubic space 163'8 cubic feet per child. Space should be provided

BETWEEN THE WALLS AND DESKS

for access for supervision, and to enable the children and mistress to write or draw upon the slates or blackboards upon the walls. Movable blackboards are inconvenient appliances, but, as they are less costly than continuous slates, the inconvenience still prevails in too many instances. It is possible still to find class-rooms with windows, blackboards, and desks so arranged that it is impossible for all the scholars to read what has been written or drawn for their instruction. The ceilings should be as much as possible unobstructed by beams or other timbers which prevent the ready flow of air or check or divert the air currents. A point which affects the health and comfort of teachers is the provision of windows at the back of the children. If these windows happen to be in a south wall,

THE EVIL BECOMES VERY TRYING.

A teacher told me a few months ago that one of his eyes was seriously injured from having to face a south window; moreover, under such conditions some of the pupils' features are in shade, and it is not possible to distinguish the effect of the teacher's remarks upon the children, which is so very desirable, and adds to the interest and pleasure of teaching. Except in cases of special difficulty, it is possible to effectively light any class-room, large or small, from windows in one wall only. An additional window may be useful for obtaining direct sunlight in an otherwise sunless room, or for securing cross ventilation not otherwise obtainable, or for other sufficient reasons, but it will in any case be found desirable to make that window smaller than the rest, or to place it in a corner of the room, or to arrange means of regulating the light from

it when required. The chief use of the assembly room or central hall is to accommodate all the pupils at one time daily, and its size is fixed accordingly. If the school is thought likely soon to expand beyond a nominal standard this room may be built to accommodate a maximum number of possible pupils; in other cases, where a smaller number of pupils are provided for, with no reasonable prospect of extension, the assembly room may be of lesser dimensions. As will be noted further on, this hall may serve for access to the class-rooms upon two floors, a consideration by which its height is often determined. Naturally, the supplementary purposes for which it is used also affect the floor space, shape and dimensions. This important room should be near the principal entrance, and have ample means for access; it was a common defect in the earlier schools that only one entrance was arranged. This should be regarded as inadmissible, except in very small schools. The position of this room in relation to the class-rooms is probably the most important factor in determining the

GENERAL PLAN OF A SCHOOL.

Side-lighting for this hall is preferable for the sake of ventilation. Where top-lighting is used, great care and judgment are required to avoid too much glass, which, moreover, should be placed as near the sides as possible, in order to prevent deep shadows being cast upon the floor from the balconies. Centre top lights are rarely successful for school-rooms of any kind. Good acoustic conditions ought to be secured for this room. For convenience of consideration, plans may be divided into three types, viz.:—1. Those which have the principal class-rooms and the assembly-room separated by corridors, as in this slide. 2. Those where the class-rooms are grouped round a central hall. 3. Those which have class-rooms on one, two, or three sides of the assembly-room, leaving the fourth side an external wall. The difficulties of a contracted or otherwise comparatively unsuitable site—while increasing the architect's interest and enjoyment of his work—often lead to varieties of treatment not included in either of these types. These may be regarded, however, as exceptional plans adapted to special situations rather than

TYPICAL EXAMPLES.

Sometimes a feeder is fostered in the form of a kindergarten room, which should be exceptionally cheerful, on the sunny side of the ground floor, near to the pupils' entrance, and to separate lavatories. A spacious room for drawing purposes facing north or east, with as much floor space as can be afforded, and wide doorway, fitted with cupboards, rails, and shelves for models, racks for boards, drawers for paper drawings and materials, a sink, dark blinds, &c., well lighted from one side or end. Usually the best situation for this room is upon the top floor. Laboratories for teaching chemistry and physics (separate rooms for each, if possible), with impervious floors, ample side or top lighting, and special means for ventilation, fitted with working tables, with water, gas, and electricity laid on. Also a small room for balances, cupboards for stores, apparatus, &c. The size of the laboratory must depend upon the extent to which science is taught in the school. It should be lofty, well lighted, with the windows just above table height, and extending to the ceiling; ventilation must be specially studied, particularly the means of readily producing cross currents of air at the levels of the work-tables and ceiling. It is convenient sometimes to plan a

SEPARATE BUILDING FOR SCIENCE TEACHING.

A covered playground fitted as a gymnasium. A luncheon-room for mistresses and pupils, with the kitchen and offices and housekeeper's rooms adjoining. These domestic rooms should be planned with a separate entrance, and be cut off from the school-rooms, with prompt access from the kitchen to all the school entrances, and from the school to the dining-room. On no account should any of the noise or odours from the domestic rooms be allowed to enter

the school proper. Well-lighted and ventilated cloak-rooms, not less than 9ft. high, and large enough to afford floor space for fittings. The best positions for cloak-rooms is, of course, near the pupils' entrance; stands for cloaks should be about 6ft. apart from centre to centre, and about one lineal foot of stand space should be allowed for each pupil, with means for drying wet clothes. A sitting-room for assistant mistresses should overlook the playground and its entrances, and be reasonably near to the head mistress's room. A small cloak-room and lavatory are convenient and desirable adjuncts. It should not be less in size than an average class-room. The

GLASS LINE OF THE WINDOWS

should be nearer the floor than in the class-rooms; in this, as in other respects, the room should be regarded as a work-room and sitting-room combined. The head mistress's room, with secretary's room and a small waiting-room, must be near the chief entrance and the platform end of the assembly-room. Neither of them need be so large as a class-room, but from the windows of the head mistress's room it should be possible to see the main entrances to the building. This room is a work-room and also a reception-room; it should be well lighted, cheerful, and convenient, with a lavatory near at hand. Stairs should be of reasonably fire-resisting materials, which will not become slippery, have easy gradients, wide treads, and shallow risers, suitable for the younger children; thoroughly well lighted, and at least 4ft. wide, to enable two files of pupils to pass each other. Those to cloak-rooms, or where there is an exceptional amount of traffic, should have hand-rails on both sides to prevent accidents, and be, say, 5ft. wide. The position, form, and size of the staircases are most important; no greater inconvenience in a school can be conceived than a carelessly designed staircase in the wrong place. A building designed to accommodate more than, say, 150 children, should have

TWO DISTINCT STAIRCASES,

as far apart as possible, but both near the assembly-room. Winders and circular or elliptical staircases are inconvenient, and ought never to be planned for these schools, wherever it is possible to avoid doing so. The rise of each step should not exceed 6 $\frac{1}{2}$ in., 6in. is better when obtainable; 11in. should be the minimum width of the tread (from nosing to nosing). Staircases need not be lofty, if sufficient head room and ample lighting be secured. Lavatories with wash-basins to accommodate, say, 5 per cent. of the pupils at one time, and closets for, say, 3 per cent., can be in most cases conveniently arranged on two or more floors in a separate wing or other suitable position, disconnected from the main building by a staircase or well-ventilated corridors. A bicycle store or shed has now become an essential requirement, as girls now ride to school in great numbers. It has been said that "one want creates another," and covered stores for cycles, now they have apparently come to stay, must be considered, and placed as near to the pupils' entrance as may be safe and convenient. Last, but not least, a spacious levelled playground for tennis and other games, small border gardens for the pupils' botany specimens, cricket and hockey meadow, &c. The endowed schools have often

EXTENSIVE PLAYGROUNDS.

Trees upon the site should be judiciously preserved for their own sake as beautiful objects, and for the sake of the shade afforded in hot weather. Seven feet is a desirable width for main corridors, which should not be of less height than the rooms adjoining. Windows at each end are essential, and there should be ample lighting throughout, especially at points where they deviate from a straight line. Having thus briefly noted the requirements, let us now consider the three types of plans before mentioned. It will be seen that in this type the assembly-room is treated as a separate room, and does not afford access through it to other rooms. It can therefore be used for drill, singing lessons, special classes, and other pur-

poses without causing inconvenience and hindrance to work going on in the class-rooms, and also without the work going on in the assembly-room being interrupted by children passing through from the class-rooms. That is an obvious advantage provided at the cost of constructing the corridor. The corridor constitutes the chief variation between this type and another, as will be seen later on. In this design the most important story is the first floor, which is approached by covered stone steps. The head mistress's room is on the right of the vestibule, and a waiting lobby on the left. Two class-rooms and a corridor are entered from this lobby; other class-rooms are on the right, and two at the left in a line with the assembly-room.

TWO WELL-LIGHTED STAIRCASES,

one at each end of the corridor, lead from the ground floor to the second floor, and there are large borrowed lights between the assembly-room and corridor, and over each class-room door. On the second floor are class-rooms over those below, a small laboratory over the head mistress's room and vestibule; one of these class-rooms is fitted as a science lecture-room, and a large studio at the end of the assembly-room. On the ground floor are the pupils' entrance, with cloak-rooms on the right and dining-room on the left, a gymnasium under part of the assembly-room, mistress's room, lavatories, tradesmen's entrance, kitchen, and offices, two rooms for special work, furnace chamber, fuel store, serving room, &c. There is access to the playground at three points. Most of the class-rooms are lighted from the south-east, the assembly-room faces north-west, and the studio north-east. This school accommodates 320 pupils, and is found, after being in use for twelve years, to be convenient and suitable for the purpose. The playgrounds attached to the school are exceptionally extensive for a high school. Classes are held there under the trees in summer. Where the rooms are

GROUPED ROUND A CENTRAL HALL,

some of them will be less cheerful than others, owing to the diminution of direct sunlight. The noise of drilling and singing will interfere more or less with the work going on in the adjoining class-rooms, and the passing of children from the class-rooms to other parts of the building will tend to disturb the work going on in the assembly-room. To set against these drawbacks, which are possibly more apparent than real, there are many advantages, viz., compactness of plan, economy of space, increased facilities for effective supervision, &c. The assembly-room gives access to two stories of class-rooms, the upper ones being entered from a gallery arranged on all four sides. This form of hall is easier to light than would appear at first sight. In fact, one has to be very careful indeed to avoid having too much lighting surface, which, it must never be forgotten, is also chilling surface in cold weather and heating surface in summer time. It is a common and fatal error to under-estimate the value of a square foot of top-light—fatal to comfort, convenience, and health. The assembly-room is occasionally used also for prize distributions, lectures, concerts, private theatricals, and similar functions, and by this plan the adjoining rooms and galleries can be used to increase the accommodation for visitors and parents. Plans of this type are a variation upon

THE CENTRAL HALL TYPE,

inasmuch as there are no class-rooms upon one side, from which the hall is lighted through windows in the only external wall. In this form of plan the class-rooms are grouped along the quietest or most cheerful side of the building, the assembly-room, studio, laboratory, cloak-rooms, and other rooms occupying positions which are less important in this respect. Galleries are required only on one or two sides, and the drawbacks of the central hall type of plan are somewhat less in this type. The conditions of the site usually settle which type of plan shall be used. There are, of course, some sites where all sorts of variations and adaptations will be found necessary. Some peculiar and exceptional opportunities for skilful and

picturesque planning arise when one has an existing building to utilise and fit in. The width of doors to class-rooms should be limited to dimensions which will permit the passage of the usual moveable furniture; 3ft. to 3ft. 3in. is usually sufficient. Those to studios, corridors, cloak-rooms, dining-rooms, entrances, &c., should be wider, with pairs of doors hung folding or to swing as may be found desirable.

GLAZED UPPER PANELS IN DOORS

and also a second door leading from one class-room to another are very useful in assisting supervision and maintaining discipline. Glass panels are sometimes objected to for apparently good reasons, but they are usually found to be convenient. The essential points to be borne in mind regarding windows are:—The chief lighting for all rooms, except those for science teaching, should be in one wall only, that on the left-hand side of the pupils, with an extra window conveniently arranged where possible for cross ventilation or extra sunlight. The glass line should be as near the ceiling as possible, and not nearer the floor than 3ft. 6in. or 4ft. in class-rooms, and the glass should be clear, except in lavatories and a few other positions. The window frames should be as near the outer surface of the wall as appearance, Building Acts, and other circumstances will permit, to afford means for obtaining admission of air without interfering with blinds, &c., and also to allow the

MAXIMUM OF FLOOR SPACE

to be used without the desks being placed too close to the glass. All windows should be made so as to be opened easily by children, and to the fullest extent possible, and should be constructed to permit portions of them to remain open if desired while work is going on, without the possibility of downward currents of air being felt by the pupils. The most suitable kinds of windows are those which can be opened most readily, and which, when open, will not admit rain or expose the occupants of the room to strong currents of air. French casements and centre-hung sashes, although very useful in some positions, are not, as a rule, desirable for class-rooms. Double-hung sashes, with hopper casements over them, hung to the transome, are a common and useful form of window. Hopper casements hung to sill and to transome, with centre or side-hung sashes between them, are found convenient, and comply with the conditions above referred to. In the wall opposite to the windows, openings near the ceiling, fitted with hopper casements, are extremely useful.

IN OBTAINING CROSS VENTILATION

of the rooms during the intervals for recreation and when the school is closed. Fireplaces are conveniently arranged in the wall facing the children, not in the centre, if it is possible to place it either near the door or in the corner near the windows, especially when warm air grates or stoves are used, as then the cold air inlets are short and accessible. It is very important that all stoves or grates used for warming the air should be capable of being taken to pieces to allow the air channels to be kept clean.

CLOAK-ROOM FITTINGS.

Stands from 5ft. to 6ft. from centre to centre; seats and boot-racks, with hot-water pipes below them, are usually provided. Where this is not possible, other means for occasional drying of damp clothes are desirable. Cement, asphalt, tiles, wood blocks, or similar materials capable of being readily cleaned are most suitable for the floors; cement or varnished wood for dados.

(To be continued.)

M. FREMIET, the sculptor, has finished the head of the colossal statue of the late M. de Lesseps, which is to be set up at the entrance of the Suez Canal. The figure is six times larger than life, and will consequently be over 30ft. in height. Over the European dress a burnous is to be thrown, and one arm outstretched will point to the great engineer's work, and indicate, as it were, the way up that unromantic ditch.

INSTITUTE EXAMINATIONS.

LIST OF SUCCESSES.

AT a general business meeting of the Royal Institute of British Architects, on Monday week, Mr. W. M. Fawcett (vice-president) presiding, results of the preliminary and intermediate examinations, held in London, Manchester, and Bristol, and of the final and special examinations in London during November, were made known by the Secretary as follows:

PRELIMINARY.

E. P. Archer, Finchley; E. G. G. Bax, Catford; W. L. Binney, Hampstead; C. A. Birch-enall, Prestwich; L. Blanc, Edinburgh; L. Boden, Bowdon, Cheshire; G. H. Briggs, London; R. W. Caldwell, Glasgow; E. W. Chennells, Hemel Hempstead; J. D. Clarke, London; A. C. Cooke-Yarborough, Ramsgate; W. Craig, London; H. W. Cubitt, Lowestoft; C. J. T. Dadd, London; W. S. Dean, Boscombe, Bournemouth; H. Eddison, Lincoln; E. F. M. Elms, London; J. Ewing, Berwick-on-Tweed; C. W. Ferrier, London; F. J. Forster, Darlington; H. L. Goldsmith, New Southgate; D. Good, Highbury Hill; B. Greig, London; C. F. Grundy, Loughborough; F. E. Gulleys, Wrexham; C. H. Heaton, Wigan; H. E. Henderson, Leeds; S. G. Hewitt, Birkenhead; T. J. Hill, Longsight, near Oldham; A. Holstead, Halifax; F. J. Horth, Shustoke, near Birmingham; R. Hosking, London; T. A. Jaques, London; R. C. Jones, Menai Bridge; F. W. Knight, Wimbeldon; F. A. Ling, Winton, Bournemouth; A. H. Longhurst, Barnes Common; J. A. K. Mackenzie, Bournemouth; W. Martin, Buxton; A. R. Meldrum, Aberdeen; F. L. Morley, Merion, co. Dublin; C. P. Moss, Crouch Hill; P. P. Nathan, Notting Hill; J. J. S. Naylor, London; C. E. New, London; G. Norman, London; G. H. Onions, Tipton; G. M. Page, Nottingham; J. H. Petch, Scarborough; P. Procter, London; H. M. Reynolds, Lincoln; F. V. Rider, Notting Hill; R. McM. Roberts, Warrington; A. Rollo, Glasgow; E. Rothwell, Walkden, near Bolton; G. F. Royds, St. Mary Bourne, near Andover, Hants; G. L. Russell, London; A. H. Salisbury, Harpenden; H. O. Samsen, Taunton; N. O. Searle, London; G. H. Sheppard, Newport, I.W.; H. D. Simpson, Kilmarnock; J. G. Smart, Edinburgh; H. F. Smith, London; F. E. Stratton, Salisbury; R. Stubbs, Winsford; P. Sturdy, Bournemouth; J. Swarbrick, Manchester; A. S. Tanner, London; H. Tebbutt, Bedford; A. D. Thacker, Walsall; R. P. S. Twizell, Newcastle-on-Tyne; G. Walker, Barrow-in-Furness; J. W. Walker, Aberdeen; S. Warwick, London; R. C. Wiles, Richmond; C. B. Wilson, Kendal; R. G. Wilson, Aberdeen; J. J. Wood, Leeds; C. Woodward, London.

INTERMEDIATE: NEWLY-REGISTERED STUDENTS.

C. T. Adshead, Stockport; G. W. Hayward, Manchester; P. E. Nobbs, Edinburgh; L. G. Bird, Chatham; S. M. Mould, Gosforth, Newcastle-on-Tyne; J. D. Mills, Tayport; G. R. C. Harding, Beckenham; L. W. Green, Datchet; S. H. Hamp, Wembley; E. F. Knight, London; L. C. Gregory, London; A. E. Gibbins, Brighton; A. L. MacGibbon, Edinburgh; J. E. Franck, London; S. W. Bensted, London; M. Honan, Liverpool; A. B. Botterill, Weston-super-Mare; E. G. Rodway, Weston-super-Mare; C. F. Newcombe, Gosforth, Newcastle-upon-Tyne; C. H. Bennett, Macclesfield; F. H. Allen, Kettering; H. P. Anson, London; E. Bates, Thornton Heath; A. E. Biggs, London; J. P. Bishop, Forest Hill; W. H. Bourne, London; G. D. Copland, Glasgow; H. E. Gifford, Edwalton; H. Jardine, London; H. L. E. Merille de Colleville, Brighton; A. H. Roe, Brockley; N. T. Salmon, Reading; F. J. O. Smith, London; R. H. Spalding, London; A. M. Torrance, London.

FINAL: QUALIFYING FOR CANDIDATURE AS ASSOCIATE.

J. F. Duthoit, Dover; L. Hobson, Liscard; W. C. Hulbert, Wimbeldon; W. McCulloch, St. Andrews, Fife, N.B.; D. C. Maynard, London; E. H. Morton, London; J. Ormrod, London; H. J. Pearson, London; H. Shepherd, Richmond.

Professional Items.

BIRMINGHAM.—The scheme for providing Birmingham with a new arcade, or rather series of arcades, in the heart of the city has now reached maturity so far as the first and most important stage is concerned—viz., the negotiations for acquiring the various properties included in the proposed area, and the adjustment of the many intricate preliminary points with which the promoters have had to deal. The arcade is to have three main outlets, viz., in New Street, High Street, and in Union Street, but the proposal to bring the latter branch out at the corner of Corporation Street and Union Street has had to be abandoned, and the plans now provide for an outlet on the site of the Old Library in Union Street. The distance traversed by the new arcades will be upwards of a quarter of a mile, and their width will be the same as that of the Great Western Arcade.

CARDIFF.—A very artistic floral depot has been erected for Messrs. Case Brothers in a prominent position on the Newport Road, near Clifton Street, Cardiff. The building occupies a frontage of 50ft., and has been built from the design of the architect, Mr. Fred C. Stibbs. The centre of the building will be used as a shop and will have an entrance from the Newport Road. The two wings will be utilised as show houses. Messrs. Duncan and Tucker, horticultural builders, of London, were entrusted with the contract for the building.

The foundation stone of a new edifice, which is in the course of construction for Richmond Road Congregational Church, has been laid. The church is designed in the late Gothic style of Architecture, and will be one of the finest Nonconformist churches in the town. It will have three main entrances from Richmond Road, besides two minor outside doorways to the vestries. One of the most striking external features of the building will be its tower, which stands at the right-hand corner of the edifice over one of the main entrances. The spire surmounting the tower will rise to the height of nearly 120ft., and will be visible from almost any part of Roath. The windows will be of cathedral glass. The edifice will be lighted by electricity. Its total cost is estimated at about £5500, the architects being Messrs. Habershon and Fawckner, and the contractor, Mr. D. Davies, Cardiff.

ERROL.—The new Victoria Hall, Errol, is situated at the west end of the village, and has a frontage to High Street. The building is capable of seating from 250 to 300 persons. Outside it has a neat and finished appearance; internally the arrangements are of a very complete description, both as regards fittings and general acoustics. The architect was Mr. Alexander Johnstone, Dundee; while the contractor was Mr. Robert Goodall, Errol.

LONDON.—The examinations in practical Sanitary Science took place on December 3rd and 4th at the Sanitary Institute, Margaret Street, W. The examinations in sanitary building construction, instituted by the Worshipful Company of Carpenters, were held on the same dates, at Carpenters' Hall, London Wall. The distribution of the prizes gained by the workmen students in the Trades Training Schools, Great Titchfield Street, W., will be made at Carpenters' Hall, London Wall, on Wednesday, December 15th.

Mr. Charles Wall, the contractor for the reconstruction of Highgate Archway, has commenced operations. Several loads of timber have been placed on the Islington and London side, and stout piles have been erected on the Hornsey and Middlesex side. A temporary building has been erected at the Highgate end, and workmen will at once begin a difficult part of the work, diverting the mains of the New River Company. The footway will be maintained on the north side during the construction of the southern half, and a temporary footway will be formed on the south side,

while the northern position is being removed. Vehicular traffic will have to be diverted.

A new hall and gymnasium has been presented to the Young Women's Christian Association by Mr. Howard Morley. The site is in the rear of the new headquarters of the Association, 26, George Street, Hanover Square. This large building was acquired about a year ago, as a freehold, at a cost of £20,000, but alterations have had to be made, and a lift and the electric light have been provided, raising the outlay to about £27,000, of which £7000 is still required. The hall and gymnasium now in course of erection, where there were formerly stables, will cost, with furnishing, about £3800; the gymnasium will be in the basement, and the hall over it will furnish accommodation for between four and five hundred persons. The architects are Messrs. F. W. Porter and Son, of Russell Square, and the builders are Messrs. Higgs and Hill, Crown Works, South Lambeth.

MANCHESTER.—The fountain which is in course of construction on the site of the temporary Thirlmere fountain, in Albert Square, is the gift of an anonymous donor, and is to cost £1000 or £1200. The design is by Messrs. Thomas Worthington and Son, architects, of Manchester. The fountain is hexagonal on plan, and consists of a lower basin, 21ft. in diameter, standing upon a raised platform of three steps of grey Scotch granite, and is constructed of finely-axed, unpolished, red granite from the Hill-o'-Fare quarries; it has a square pier, with moulded cap and base at each of the six angles, the sides of the basin between the piers being boldly moulded. From the centre of this basin rises a second one, 9ft. in diameter, made of the finest Bolton Wood Sandstone, a close-grained material adapted to withstand the action of the water. This basin has a moulded base at the surface of the water in the lower one, upon which stand six triple shafts of red granite, having carved capitals supporting the overhanging corbelling of the bottom of the basin. The erection of the fountain was entrusted to Messrs. J. and H. Patteson, who also executed the adjoining Albert Memorial from the design of Mr. Thomas Worthington. The dolphin has been modelled by Mr. John Cassidy.

MONMOUTH.—The new high school, built on the foundation of Jones's Charity, has been opened. The building stands on an eminence on the north side of the town; it faces south, commanding a splendid view of the Wye valley, both up and down the river. The building is of the Victorian Era style, and stands on 2½ acres of ground, and will accommodate an hundred day scholars and fifty boarders, as well as the staff. It is built of local sandstone and greenmore stone, with dressings of Bath stone, the whole of the stairs and corridors being of stone, and fire-proof. The building is heated by boilers fixed under the basement; there is a tank at the top of the house which holds 7000 gallons, and it is supplied with fire appliances and several hydrants outside. On the basement there are three class-rooms, ten music rooms, drawing-room, library, &c., and the hall, which is 60ft. by 29½ft. On the first floor there are five dormitories, a general bathroom with five baths, teachers' day room, students' day room, the head mistress's apartments, and three single rooms for teachers; this floor is approached by three flights of fireproof stairs. The second floor has seven dormitories, three single rooms for teachers, a sick ward, bath, &c.; the latter are isolated from the rest of the building. On this floor there is also a bathroom with four baths; this floor is approached by two flights of stairs. There are lifts from the basement to all the floors for domestic purposes. The central front block is surmounted by the arms of the Haberdashers' Company and that of the donor, William Jones. The principal entrance is through an iron carriage gate, flanked by iron railings. The building cost £20,000. The architect is Mr. H. Stock, and the contractors Messrs. W. Gradwell and Son.

NEWCASTLE.—The new lecture hall of Salem Church, of the Methodist New Connexion, at the corner of Falconar Street and Camden Street, Newcastle, has been opened. There is erected a spacious platform; cloak and class rooms, &c. The interior of the building has been decorated by Mr. G. G. Laidler, Northumberland Street. The heating apparatus has been supplied by Messrs. Henry Walker and Sons, and the seats provided by Mr. Stockdale, of Gateshead. The contractor, Mr. J. C. Hope, had charge of the general arrangements, whilst the whole of the work has been executed under the supervision of Mr. R. L. Hay, the architect.

NORWICH.—The new Royal Hotel, recently opened, stands at the top of Prince of Wales Road, immediately opposite the Post Office and the Agricultural Hall. The plot of land on which it has been built is of an awkward shape, and no little ingenuity was demanded on the part of the architect to design a building that should have a bold and elegant frontage. As a matter of fact, the frontage is very extensive, and forms almost a perfect arch. The basement on the Bank Street side is the kitchen department, with a kitchen 40ft. by 26ft., scullery 30ft. by 10ft., and ample larder and pantry accommodation. The whole are ventilated into one large main shaft to the top of the building. The portion next Upper King Street is set apart for the various departments of the working staff. The ground floor shows, perhaps, the best piece of planning, with its large hall, 40ft. by 30ft., with manager's room attached, and office and porter's room on the right and left of the main entrance. At the back of the hall there is a winter garden, 30ft. by 20ft. Next to the large central area, in the centre of the building, is a light and airy corridor right round the building, thus giving access to the different rooms. From the large hall is approached the main fireproof staircase with passenger lift, and entrance to the reception-room with cloak-room attached, these being next to the large dining-room, some 60ft. by 30ft., with panelled walls and teak floor. This is a room of many different angles, with circular bay, and a variety of windows. The first floor is devoted to suites of rooms and to a large central drawing-room, with bold bay window and French casements to balcony. This room is rendered very interesting by the fact that it is ceiled in with a celebrated old ceiling removed in pulling down Messrs. Foster and Burroughes' offices. Next to Bank Street is a two-table billiard-room, with ample top light and ventilation. There are also three large stock-rooms. The upper floors are given up to bedrooms, a service lift running up to top floor, and each floor having double bath-room and lavatory for gentlemen and ladies, all being amply ventilated and lighted. The elevations are composed of red facing bricks and Messrs. Gunton's Cossey ware. The building is roofed in with green slates, and may be described as being of the Flemish style of Architecture. The contractor was Messrs. J. Youngs, and other firms were Messrs. R. and A. Main, the heating and cooking engineers; Messrs. Barnes and Pye, the ironfounders, who supplied and fixed the ironwork; Messrs. Laurence, Scott, and Co., lifts, bells, lighting, &c.; Messrs. Trevor, Page, and Co., who decorated the principal rooms; and Messrs. Maple and Co., decorators and furnishers. Messrs. Edward Boardman and Son are the architects.

PUDSEY.—The new Baptist chapel, erected at Littlemoor, Pudsey, has been opened for public service. The new edifice has been erected from the designs of Messrs. Hodgson and Farrar, architects, Bradford and Pudsey, and is in a plainly-treated classic style of Architecture, the front being relieved with dressed ashlar piers and moulded cornices. The chapel, which has a gallery running on three sides of it, provides sitting accommodation for about 600 persons. At the east end is a choir and organ gallery, separated from the chapel by a large semi-circular arch. The rostrum, which forms a central feature, is

elaborately treated, and is of pitch pine and mahogany. The ceiling of the chapel is treated with a lantern running the length of it, relieved with ornamental plaster work. The artificial lighting is by means of Stott-Thorpe ceiling lights, the heating is by hot water on the low pressure system, and the ventilation is on the most approved principle.

SHEFFIELD.—A very encouraging start was made in the library of the Montgomery Hall with the course of lectures to be given by Mr. Hugh Stannus, Lecturer at the Royal College of Art, South Kensington, on "Some of the Classic elements of Architecture." Ten addresses are to be delivered, and the attendance at the first, in which Mr. Stannus treated of the origin, function, names, and individual treatment of mouldings, was considerably larger than Mr. C. J. Innocent, the honorary secretary, and the other members of the Sheffield Society of Architects and Surveyors, who have been the means of bringing Mr. Stannus to Sheffield, had anticipated.

SKIPTON.—The large and handsome new club premises in connection with the Skipton Liberal Association are now completed. The total cost of the premises amounts to nearly £5000. The building fronts to Keighley Road and Sackville Street. On the ground floor there are six large lock-up shops, near the centre of which is the main entrance to the club, above these being a wide staircase and corridors leading to all the rooms. On the first floor there are smoking-room, reading-room, and library, and the two former are connected by sliding doors, so that they can be made into one room to seat at least 150 people. There are three other rooms on the same floor, besides bath rooms, &c. On the second floor there are two recreation-rooms and curator's private room. On this floor there is a very large billiard-room, 52ft. by 32ft. 6in., containing three full-sized tables. Adjoining this is a private billiard-room. The top floor also contains the curator's living rooms. The heating is done from a cellar under the staircase. Mr. James Ledingham, of Bradford, was the architect.

STAPLEFORD.—The new Board School for Boys, at Stapleford, has recently been opened. The school has been in course of erection about twelve months. The building was designed by Mr. W. H. Higginbottom, architect, of Nottingham. The main entrance leads direct into the central hall, which is 61ft. long and 25ft. wide. Additional entrances and exits are also provided at the opposite end of the building. The class-rooms, six in number, are arranged four on one side and two on the other, each being 25ft. by 24ft., accommodating sixty scholars. The building is so planned that two class-rooms may be added at a future time. The master's room is arranged over the back cloak-room, and has immediate access to the balcony, from which the master is able to see into most of the rooms of the school. This room also commands a good view of the playground. The floors of the central hall and class-rooms are of wood blocks, and the floors of the cloak-rooms and corridors are of Val-de-Travers. The whole of the internal walls of the hall, class-rooms, and cloak-rooms have a glazed brick dado, 4ft. 6in. high, above which the walls are colour-washed. The heating is by means of low pressure hot-water pipes. The ventilation has been carefully considered, and it is effected by means of sliding doors in ceilings, communicating with a continuous ventilator on the ridge. For extra summer ventilation several of the windows open close to the ceiling. The building externally is faced with red bricks, with stone dressing, and the roof is covered with slates. The school has a large playground, which is asphalted, and there is a large covered playshed in the yard for use in wet weather. The work has been carried out at a cost of about £3000, and the contractors were Mr. Charles Moulton (bricklayer, &c.), Messrs. Pacey and Henson (joiners), Mr. E. Fisher (painter), all of Stapleford; and Mr. H. Shardlow (plumber), of Hyson Green.

THE WINTER SESSION.

LANCASHIRE ANTIQUARIANS.

At a meeting of the Lancashire and Cheshire Antiquarian Society, held at Chetham's College, Mr. Mallalieu exhibited and described some recent finds from Castleshaw, and the Rev. E. F. Letts read a short communication, "De Pictis Britannicis." Colonel Fishwick gave some account of the disputed boundary in Ashworth, temp. Edward VI., after which Dr. Renaud read a paper which had relation to a series of abbreviated deeds concerned, with early tenures of land in Minshull Vernon and adjoining townships, in Cheshire.

THE BROADWAY THEATRE AT NEW CROSS.

On Saturday, November 27, the Goldsmiths' Institute Architectural and Building Society paid its first visit to the Broadway Theatre, by the permission of Mr. Sprague, the architect. The theatre is one of the latest additions to London's playhouses. It has a bold and massive appearance as viewed from the Broadway, and is constructed throughout of fire-proof materials. The elevation is of handsomely carved stone of a good design. The theatre is a modern three-tiered one, fitted with electric light and all the latest ideas. The gallery and balconies being constructed on the cantilever system, a good view of the stage can be obtained from every part of the house. The stage compares favourably with London stages as to its size, it being 72ft. by 38ft. The work is proceeding at a rapid rate, and the building is to be opened by December 20. The visit terminated with a vote of thanks to the Clerk of the Works, who conducted the party.

THE NOTTINGHAM MASTER BUILDERS' ASSOCIATION.

Mr. W. J. Barton, secretary of the Nottingham Master Builders' Association, writes us:—This Association has now permanent offices at Bentinck Buildings, Wheeler Gate, with a room set apart as committee and reading-room, and we are forming a library of books connected with trade matters and also of catalogues and price lists, &c., of all goods, appliances, &c., used by the building trades. We therefore invite all manufacturers, merchants, and factors to send full particulars of their goods, which will be placed in the library for reference.

MANCHESTER SOCIETY OF ARCHITECTS.

The thirty-third annual dinner of this Society took place at the Queen's Hotel. The president of the Society (Mr. John Ely) occupied the chair, and the company included the President of the Royal Institute of British Architects (Professor Aitchison, A.R.A.).—The president proposed "The Royal Institute of British Architects and its President."—Professor Aitchison, in his reply, urged the importance of Architecture as a factor in a nation's progress, and pointed out how difficult it was for Architecture to advance unless the public took an interest in it. There were special difficulties in the way of the architect, for whereas the products of genius in music and in painting could be exhibited all over the world, the works of the architect could not so be treated. Unless there was some strong love for a thing, or some considerable appreciation of it, he did not see how it was possible to expect persons to devote their whole lives to it, and more especially those who had a natural genius for it. It seemed to him that the public were considerably mistaken in the view they took of Architecture, and he could wish that in such a town as Manchester particularly, where there was much mental activity, and whose wealth was enormous, a greater interest were taken in the profession of Architecture. He trusted that greater interest would be taken in this matter, and that it was not too much to hope that in the far-off time people would come from the east and the west, as they now went to Athens and Rome and Florence, to sketch and take note of the great works of Architecture found within its precincts.

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

GEOMETRICAL PROBLEMS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I am working out some practical problems in geometry, including the trisection of any given angle, formation of polygons of five to twelve sides, inscribed circles in triangles and compound angles, and the square and circle problem, &c.

The geometrical solution of some polygonal figures, the trisection of a given angle, and the squaring of the circle are said to be impossible. I submit my methods are more nearly correct than any yet published, and are valuable for teachers and students, besides being more direct and easy for the young draughtsman and mechanic.

I shall be glad of your valued opinion as to the publication of the above, if upon inspection they are found to be as valuable as they are interesting.—Obediently yours, R. R.

A series of practical solutions to geometrical problems at present considered impossible of solution might well form the basis of a new book on Plane Geometry—of which, however, there are so many already on the market that it might be difficult to find a publisher for another. It always pays an author best to publish such a work first in serial form, and although we fear that the subject is somewhat too academic in character for the pages of this journal, we should be glad to see our correspondent's solutions, and to pass an unbiassed opinion upon them.

A QUESTION OF LIABILITY.

To the Editor of THE BUILDERS' JOURNAL.

SIR.—One of my ground landlords has recently served me with notice of dilapidations. These will shortly be carried out. His solicitor has recently informed me that whether the dilapidations are finished by the time mentioned in the notice or not, he will demand his expenses, and that the surveyor's should be paid by me. Will you kindly inform me whether I shall be in the right in refusing payment of the same?—Yours truly, J. G.

Counsel's opinion, which has been taken on the point by our solicitor, is as follows: "Referring to the enquiry as to whether or not a ground landlord is entitled to recover his solicitor's and surveyor's expenses in connection with serving a notice of dilapidations under a lessee, even though the lessee after receipt of the notice duly carries out the works specified in such notice within the time prescribed by such notice, I am of opinion that the ground landlord is entitled to claim the reasonable and proper charges of his solicitor and surveyor in connection therewith."

EXAMINATION IN BUILDING CONSTRUCTION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should deem it a favour if you could tell me whether or not there is a firm publishing the examination paper of the Science and Art examinations in building construction with the answers worked out; if so, kindly state price and any further particulars.—Yours truly,

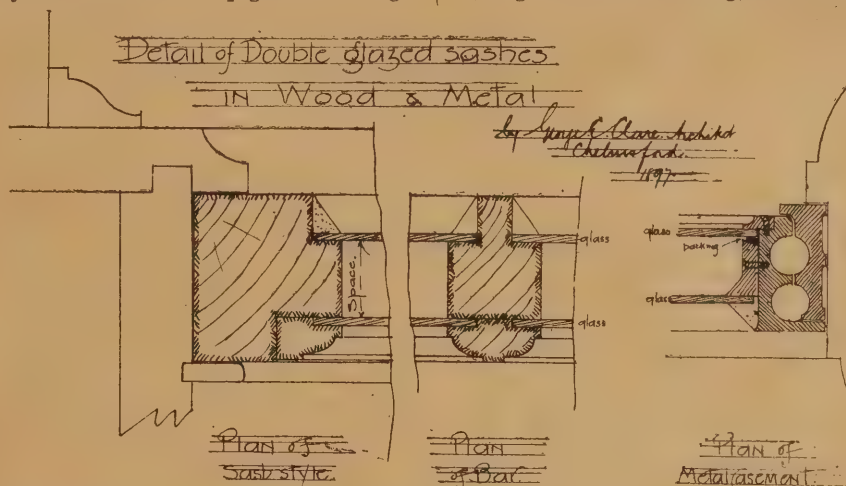
WHITE ROSE.

The book you require is "Key to the Science and Art Examinations, Subject 3, Building Construction," by Henry Adams, C.E. Price about 3s. 6d. It is published by Chapman and Hall. The Science and Art Department publishes its own questions, but without the answers.

Views and Reviews.

PAINTING AND DECORATING.

It is a pleasure to notice that at last a thoroughly good and reliable text-book upon painting and decorating has been produced, and the author, Mr. W. J. Pearce, is to be highly congratulated upon this final result of many years of labour. Written by a painter for painters, the book is a collection of carefully arranged facts, clearly put and well described, so full and complete that it would be difficult to imagine that anything further could be added about the painter's craft, while so well arranged and supplied with so good an index that whatever might be wanted could be found with the least possible delay. Unfortunately, four coloured plates have been introduced, or, it may be, fortunately, for their very crudeness acts as a foil, only setting off more plainly the beauty of the many black and white illustrations. Still, it is a very great pity that a book which is sure to become the leading text-book for all young painters should have such remarkably bad coloured illustrations. They are almost sure to be taken as models, and their influence for evil would then be hard to exaggerate. It would have been better to have omitted them entirely. In fact, it is questionable whether a book which is almost entirely devoted to hard technicalities ought to contain any ornamental designs whatever. In the preface the author claims that these are explanatory of the text, and of the application of the principles advocated in the book; but it is difficult to see how this is the case. Take, for instance, the carefully laid down rule on page 232 that sign-



writers should not sacrifice legibility to elaboration, and compare this theory with practice as exemplified in the head lines to Chapter XI! It will, therefore, be understood that while the book is a good one when considered from a practical standpoint, it is necessary to take it with caution upon matters of design, and to reject it entirely upon taste in colour. It contains useful chapters upon "The Philosophy of House Painting"; "The Workshop and Stores"; "Plant and Appliances"; "Brushes and Tools"; "Materials"; "Colour Mixing"; "Distemping"; "Painting"; "Staining"; and several allied crafts, such as "Wall Papers," "Lettering," "Sign Writing," and "Decoration in Relief," the whole winding up with a few valuable notes on "Measuring and Estimating," with a kind of appendix upon "Coach Painting."

"Painting and Decorating." By W. J. Pearce. (Chas. Griffin and Co. Limited, Exeter Street, Strand. Price 12s. 6d.)

A BILL has been drafted conferring upon the County Councils of Middlesex and Surrey power "to construct and maintain a new bridge across the River Thames between Brentford and Kew in lieu of the existing bridge, with approach roads and accesses thereto," as well as power to raise moneys for these and other purposes.

Correspondence.

DOUBLE-GLAZED WINDOWS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Appropos the remarks made in "Bricks and Mortar" column of a recent issue, I should like to say that the advantages of the double-glazed windows have been firmly impressed on my mind for some two or three years; I worked out the idea in detail about twelve months ago, and inclose tracing of the details showing how the idea could be adapted to wood and metal windows.

In addition to the large cooling surface afforded by single-glazed windows in winter, the same surface of glass, of course, tends very much to heighten the temperature in summer; thus with double-glazed windows we should have cooler rooms in summer and warmer in winter, with a smaller consumption of coal.—Yours truly,

GEORGE E. CLARE.
Chelmsford, Nov. 25.

A WORKMAN'S REPLY.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Being a subscriber to your valuable and interesting journal, my attention is drawn to "A London Architect's" letter last week commenting on dishonest tactics of the workmen engaged in the building trades, particularly the masons and bricklayers. I have been working as a mason for nearly forty years, and the old story of men not working as hard as twenty years previously—the same old fable that has been handed down from time immemorial, and will continue to go on as long as there is building to be done—is

repeated. If "A London Builder," whose letter followed that of "A London Architect," is troubled he has his remedy, i.e., to discharge the men who are not doing their duty. I ask "A London Architect" and his friend, the builder, Is it the fault of the men that clients of the architect and the builder have to suffer? I venture to assert, and prove it if necessary, that in no trade is there more jobbery and corruption than in the building trade. Having worked in many towns, I am speaking from experience when I say that 90 per cent. of the contractors in this country never intend to fulfil their obligations, and in many cases with the connivance of the architect, or, failing him, the clerk of works. I have been on jobs specified for the very best hard stone, and scarcely any has been used, stone being substituted of a soft nature of neither the price or the quality. Such actions, putting hundreds of pounds into the pockets of the contractors, are carried on before the eyes of the architect and clerk of works, and this deception permeates the whole of the branches of the trade. In conclusion, I would say let architect and contractor clean their own slates of the corruption which exists amongst them, and not fall back upon a bogey that has been used before they were born, and is only imaginary.—Yours,

Leeds, Nov. 28. STONEMASON.

Trade and Craft.

BRIDGING THE STOUR.

For some time past a scheme has been on foot to increase communication between outer Kent and the Isle of Thanet, by bridging the river Stour at a spot known as Pluck's Gutter. At a recent meeting of the Isle of Thanet Rural District Council, the report of the Joint Committee of the Thanet and Eassey District Councils, with reference to the proposed bridge, was presented. Promises of land had been obtained, and it had been ascertained that the Council was not liable for compensation in respect to any ferry rights at Grove Ferry or Sandwich Bridge. The probable cost, including certain alterations in the original scheme, would be about £10,000. The Committee recommended that steps be taken immediately to promote a provisional order for carrying out the undertaking.—The Rural District Council adopted the report.

MESSRS. PETERS, BARTSCH AND COMPANY.

This well-known firm are the makers of the patent Carbolineum Avenarius, a compound that should be of great service to builders and others. Its properties act as an efficient preservative of wood, forbidding decay through dampness and other causes. Without the application of any pressure Carbolineum Avenarius penetrates into the wood and has the effect of driving out the moisture. On the other hand it does not stop up the pores of the wood and so cause dry rot. It can be used not only to new wood on interior or exterior building work, but to existing structures, such as sheds, platforms, bridges, landing-stages, &c., poles, posts, fences, timber in mines, also on board ship, to wood paving blocks, and, in fact, upon any wooden material, as well as to stone and ropes. Where decay has commenced, by removing the affected part and applying Carbolineum protection is afforded. It possesses properties that are deadly to insects, and thus is of great service when used in nurseries, stables, cowsheds, &c. It also has the advantage of being non-inflammable; it can be applied either by painting or immersion, and one gallon will cover from thirty to fifty square yards, according to the nature of the material and surface. Another speciality of Messrs. Peters, Bartsch, and Company is their Anti-oxide enamel paint, which affords protection against rust on all kinds of iron structures and machinery. Its efficacy has been greatly commended by users of it. Messrs. Peters Bartsch and Co. are also the proprietors of the patent Indestructible Combination Washers, for flange joints of steam and water pipes. These washers consist of rings of soft metal, grooved outside, and holding in the groove packing material, such as asbestos, rubber, hemp, &c.; they are said to accommodate themselves readily to any unevenness in unplanned flanges. They have been tested up to 2300lb., and have been found to resist the highest pressure; they cannot be blown out. They are not only applicable for engines, heating and hydraulic apparatus, but can be used for sanitary purposes in drainage and so forth. Amongst the other specialities supplied by the firm—whose head office is at Derby, but who have a London office at 68, Queen Street, Cheapside—are the Carbotron portable stoves, which possess several unique advantages. Used with the Carbotron Heating Company's smokeless and non-smelling fuel, there is no danger of flying sparks, and, when lighted, they require no further attention from six to twelve hours, according to the regulation of the ventilators. They can be moved about whilst alight, and placed upon wood floors without any risk of fire, and can be used in entrance halls, corridors, offices, shops, warehouses, hot-houses, &c., where there is no chimney; and in lavatories in the winter to prevent water pipes and fittings freezing and bursting. In this latter respect their value cannot be over-estimated, as in the winter season much inconvenience, as well as damage, is frequently caused through a want of warmth to pipes and fittings.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BLACKWELL (Derbyshire).—For making up Kirkstead-road and certain streets for the Rural District Council. Mr. Hy. Silcock, surveyor, 20, Westgate, Mansfield:—

Lane and Son	£324	John Tomlinson, South
H. H. Barry	324	Normanton (accepted) £354
Joseph Tomlinson	324	

Barry	£368	John Tomlinson, South
Lane and Son	308	Normanton (accepted) £223
Joseph Tomlinson	280	

Barry	£311	John Tomlinson, South
Lane and Son	270	Normanton (accepted) £217
Joseph Tomlinson	256	

Barry	£331	John Tomlinson, South
Lane and Son	295	Normanton (accepted) £208
Joseph Tomlinson	257	

BRADFORD.—Accepted for two steel lattice foot-bridges, at the workhouse, for the Guardians. Mr. F. Holland, engineer, 110, Parkinson's-chambers, Huddersfield, Bradford. Quantities by the engineer:—

J. Bagshawe and Sons, Limited, Batley	£514 16
BRADFORD. —For steam-boiler setting and house for same at the workhouse, for the Guardians. Mr. T. Barker, engineer, 5, Bond-street, Bradford:—	
B. Jackson and Sons £377 10	Walter R. Booth £270 0
William Holdsworth 339 0	Toothill and Balm-forth* 264 11
John Moulson & Sons 330 0	
Humphreys & Moulson 300 12	

BRIDLINGTON QUAY (Yorks).—Accepted for additions, etc., to the "Bon Marche," for Messrs. Marshall. Mr. J. Earnshaw, architect, Carlton House, Wellington-road, Bridlington Quay:—

A. Gardam, Bridlington Quay	£624 8
Hick and Hobson, York	260 0

BRIDLINGTON QUAY (Yorks).—Accepted for the erection of house and shop, Hilderthorpe, for Mr. W. Moody. Mr. J. Earnshaw, architect, Bridlington Quay:—

E. Corner, Bridlington Quay	£387 15
CARDIFF. —For the erection of villa and stabling, Rumney, for Mr. J. M. Lewis, Castle-road, Cardiff. Mr. S. Rooney, architect:—	
Evans and Owen £1,528 19 6	S. Davies £1,290 0 0
Cadwalader and Hookridge 1,325 0 0	Handford and Ellisworthy £240 0 0
G. Lewis 1,510 0 0	Cox and Bardo* £1,200 0 0
Hampson and Co. 1,500 13 11½	Venning and Co. 1,150 0 0
Knox and Wells 1,450 0 0	Powell and Mansfield 1,170 0 0
Ingleson and Co. 1,335 0 0	

CORK.—For the erection of two semi-detached villas, Douglas-road, for Mr. D. J. Buckley, architect, 21, Adelaide-street, Cork. Quantities by architect:—

D. O'Callaghan, Cork	£1,150	John Buckley	860
D. Duggan, Phoenix-street, Cork (accepted)	970	J. Kietz	860

FOREST GATE.—For the erection of nine shops and dwelling-houses, for Mr. B. L. Byatt. Mr. H. J. Hollingsworth, architect:—

Edwards and Medway £9,539	Thomerson and Son	£7,790
Webb 8,179	Hearle and Farrow	6,998
Hoskins 7,795		

HORNSEA (Yorks).—For the construction of concrete reservoir, filtering chambers, etc. (Contract No. 1), for the Urban District Council. Mr. P. Gaskell, surveyor, Hornsea:—

Brunton and Son (time, four months)	£1,649 7 7
J. Bell	1,587 4 5
B. Robinson, Hull (accepted, Time, four months)	1,540 10 0
Hy. Hulst (time, eight months)	1,542 7 6

HUDDESFIELD.—For the erection of stabling, etc., and forming a bowling green, "Griffin" Inn, Crosland Moor, for Messrs. William Stones, Limited. Mr. J. Berry, architect, 9, Queen-street, Huddersfield:—

Masonry.—A. and T. Haigh, Golcar	
Joinery.—G. W. Brook, Crosland Moor	
Plumbing.—Sanderson Bros. Paddock	
Plastering and Slating.—W. E. Jovett, John William-street, Huddersfield	£355
Painting.—Thos. Cartwright, Crosland Moor	
Concreting.—John Cooke, Little Royd	

HUDDESFIELD.—For the erection of two houses, Salford. Mr. J. Berry, architect, 9, Queen-street, Huddersfield:—

Masonry.—J. Moorhouse and Sons, Meltham	
Joinery.—J. Sunderland and Sons, Lockwood	
Plumbing.—D. Taylor and Sons, Lockwood	£350
Plastering.—G. Corney, Lockwood	
Painting.—W. Eastwood, Lockwood	
Slating.—T. Longbottom and Sons, Lockwood	

IPSWICH.—For erecting Middle School, Ipswich. Mr. J. S. Corder, architect:—

G. Greenwood & Son £240 0 0	A. Marriot	£283 0 0
G. A. Kenney 782 0 0	T. Parkinson & Son	505 0 0
F. Bennet 690 0 0	W. Grayston*	587 17 6

KINGSTON.—For new roads, sewers, etc., Coombe Neville Estate, Kingston, for Mr. Wilson. Mr. A. J. Windybank, surveyor:—

Free and Son	£4,182	Kavanagh	£2,600
Cunliff	2,945	Atkins	2,405
Ballard, Ltd.	2,864	Adamson, Kingston*	2,075

LONDON.—For new Junior Mixed department, &c., at the Malmesbury-road School, Bow, for the London School Board. Mr. T. J. Bailey, architect:—

Stimson and Co.	£9,155	
W. Shurmer	9,009	163
Treasure and Son	8,669	143
W. Pattinson and Sons	8,308	163
L. H. and R. Roberts	8,151	175
E. Lawrence and Sons	7,850	151
P. and F. J. Wood	7,836	150
W. M. Dabbs	7,475	151

LONDON.—For the erection of a coroner's court and mortuaries at Catford, S.E., for the Lewisham District Board of Works. Mr. John Carline, surveyor:—

F. P. Smith	£4,815	Ham and Son	£4,313
E. Mills	4,786	Walker	3,626
J. and C. Bowyer	4,395		

LONDON.—For new road and sewers, Hyde House Estate, Battersea, S.W. Messrs. F. and W. Stocker, surveyors, 99 and 91, Queen-street, E.C.:—

Daniel Bros.	£1,100 0	W. Swaker	£625 0
Thomas Pedrette	962 0	S. Kavanagh	625 0
G. Wimpey	958 0	D. Brewer	578 10
E. King	738 0	Lawrance & Thacker	385 0
Clift Ford	660 0	T. Adams	519 0
W. Nicholls	655 0	G. Carpenter	51 0
Jno. Jackson	650 0	J. Hare, 40, Turret-grove,	
Killingback and Co.	639 0	Clapham, S.W.*	465 0
Rawlings and Son	635 0	Herbert Clark	417 0

LONDON.—For alterations and additions to Devonshire House, Stoke Newington, for Mr. W. G. Bradley. Mr. C. Jackson Shaw, architect, 81, London-road, Hackney Downs N.E.:—

A. S. Stevens	£1,611	S. Goodall	£1,310
J. R. Cordell	1,603	G. Flaxman	1,27
Steven Bros.	1,568	A. Davis, Canonbury	95

LONDON.—For sundry repairs and decorations at Nos. 7, 8, 9, and 10, Harpur-street, W.C., for the National Society for the Prevention of Cruelty to Children. Messrs. Reeves and Styche, architects, 3, Gray's Inn-square:—

Patman & Fotheringham £411	Thomas Sobey, Lambs
Hayworth and Sons 321	Conduit-street*
Campion 298	

LONDON.—For new stabling and alterations to existing buildings, for Messrs. Pritchard and Moore Brothers, at the Canadian Horse Repository, Lambs Conduit-street. Mr. John Farrer, architect and surveyor, 20, Finsbury-pavement, E.C.:—

Stevens	£1,036	T. W. Brown	£205
Steed	955	Thomas Sobey*	894

LONDON.—For alterations and additions at No. 10, Montague-place, Russell-square, W.C. Mr. James Neale, architect, 10, Bloomsbury-square, London, W.C.:—

Colwill	£230	Lidstone (accepted)	£200
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LONDON.—Accepted for alterations at No. 2, Montague-place, Russell-square, W.C. Mr. James Neale, F.S.A., architect, 10, Bloomsbury-square, W.C.:—

Lidstone	£192 17 8
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MARKET BOSWORTH (Leics.).—For the erection of a board room, for the Union Guardians. Messrs. R. J. and J. Goodacre, architects, 5, Friar-lane, Leicester. Quantities by architects:—

H. W. Boulter	£286 0 0	Slater & Harrison	£288 0 0
J. Cowett	969 9 0	H. W. Beck, Market Bosworth*	£21 10 9
Slater and Son	912 13 10		
E. Orton	890 0 0		

NEWHAVEN.—Proposed alterations and additions to business premises, High-street, Newhaven, Sussex, for Mr. J. Bannister. Mr. Wm. Cooper, M.S.A., architect, 21, Havelock-road, Hastings:—

M. Woolger, Newhaven (accepted)	£475
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SEAFOORD.—For the erection of a country doctor's house, Broad-street, Seaford, Sussex, for Dr. W. P. Morgan. Mr. Wm. Cooper, M.S.A., architect, 21, Havelock-road, Hastings:—

J. Simmonds & Co.	£2,900 0	C. Morling, Seaford	£1,953 10
Hastings	2,200 0	S. H. Berry, Seaford	1,940 0
F. Crutenden, St. Leonard's	2,200 0		

SHOTTON.—For new Railway Hotel, Shotton, Flint, for the Kelabert Brewery Company, Limited. Messrs. J. H. Davies and Sons, architects, Newgate-street, Chester. Quantities by architects:—

J. Lloyd	£2,798	W. S. Wood and Co.	£2,466
M. Rogers	2,759	T. J. Reney, Connah's Quay*	2,433
J. Mayers	2,695		
W. Peel	2,644		

SILVERHILL (St. Leonards).—Proposed new shop and alterations to Sonnenberg, Silverhill, St. Leonards, Sussex, for Mr. R. L. Davies. Mr. Wm. Cooper, M.S.A., architect, 21, Havelock-road, Hastings:—

F. G. Hutton, St. Leonards	£245
Vigor and Co., Hastings	320
A. H. White, St. Leonards	316
J. Simmonds and Co., Hastings	315
Tapner and Woodman, Hastings	238
E. Guttzell, St. Leonards	226
J. Crutenden, St. Leonards	203
Chapman and Cuff, St. Leonards	257

SOUTHWATER (Sussex).—Accepted for cottage residence (exclusive of stabling). Mr. James Neale, architect, 10, Bloomsbury-square, London, W.C.:—

Ladstone, London	£958
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SWINDON.—For the construction of brick sewer, &c., for the Old Swindon Urban District Council. Messrs. Shopland and Redman, engineers, Newport-street, Swindon:—

W. L. Meredith	£1,612	W. H. Smith and Son	£700
B. Winchcombe	730		

TRURO.—For the erection of malting, Walsingham-place, for Messrs. Mallet and Co. Mr. Wm. Swift, architect, 23 Lemon-street, Truro:—

H. Tippet	£706	J. and C. Harris	£659
Dyer and Tippet	735	R. H. Tonkin, Tregony*	450

WOLVERHAMPTON.—For alterations and additions to the North Wolverhampton Working Men's Club. Mr. J. Mason, architect, 80, Darlington-street, Wolverhampton:—

Benjamin Guest (accepted)	£288
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Surveying and Sanitary SUPPLEMENT.

DECEMBER 8TH, 1897.

PLANE TABLE SURVEYING.

By G. A. T. MIDDLETON, A.R.I.B.A.

A PLANE Table is an instrument which is not known amongst English surveyors to anything like the extent that it should be, serving, as it does, the purpose of a rough and simple theodolite for preliminary work, and where very great exactitude is not necessary. It consists in itself of nothing more than a small drawing-board, with rollers at either end upon which a roll of paper can be wound, and with an arrangement for a tripod head; and for many purposes an ordinary small drawing-board will serve perfectly well. There are, besides, two loose parts: a box compass and a sight vane. In case of an emergency, any small pocket compass will suffice, but the box form has some slight advantage; while an ordinary boxwood scale, with a couple of needles erected at the centre of either end, will serve the purpose of the sight vane.

The instrument is mostly used for exploration work, preliminary to a more detailed survey, and the plotting is generally done to quite a small scale. It will be noticed that those shown on the illustration of sight vane are of 4 in. and 6 in. to a mile.

A sketch is given of an assumed preliminary survey, made on the table and plotted direct without any preliminary booking. The table is erected over Station 1 so as not to move horizontally, and a point chosen to represent Station 1, this being marked by a fine needle or pin. The compass is now placed at one corner, and moved about until its marked end comes to rest opposite the centre of the box, showing that the magnetic meridian is in the direction indicated by the arrow. A pencil line is then run round the box, and this point marked as shown on the sketch. The sight vane is next placed upon the table with one of its edges against the needle, representing Station 1, and a sight is taken to some prominent object which it is intended to use as Station 2. As the edge of the sight vane rests against the needle, a line drawn along this edge will represent the direction from Station 1 to Station 2, and this is drawn indefinitely; similar sights being then taken and similar lines being drawn to prominent objects which it is intended to locate, such as trees on the banks of river numbered 4 and 6, and some other mark on the top of a hill numbered 5, these lines being shown dotted on sketch.

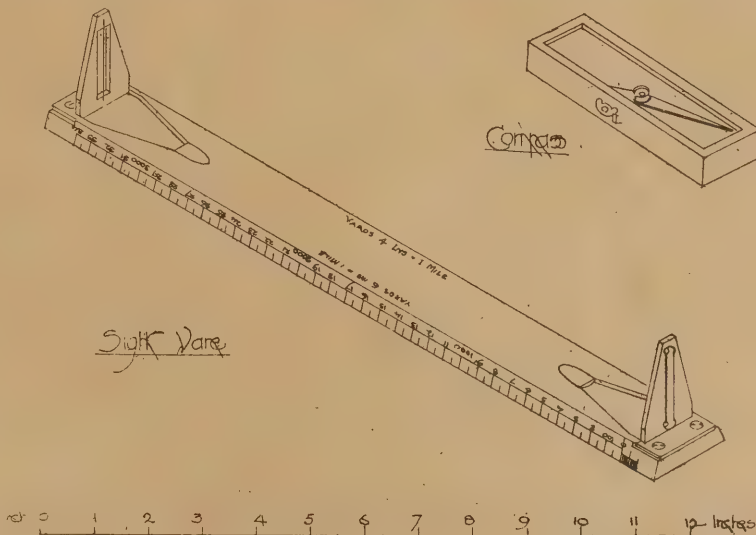
The distance from Station 1 to Station 2 is next carefully measured, and, if necessary, this

should be done two or three times, as upon its accuracy depends all the subsequent work. This length is scaled upon the drawing, and the needle, removed from point 1, is now inserted upon point 2. The plane table is again erected at Station 2, the compass placed exactly over the square which it previously occupied, and the table revolved until the same meridian is taken. Then, on taking a sight with the edge of the vane against the needle on point 2 and looking back to Station 1, the edge should be found to coincide with the line already drawn. This being the case, fresh sights can be taken to points 4, 6, and 5, and, lines being drawn, the representations of these points are fixed to scale on the plan at the intersections with dotted lines from Station 1. It will be

line 2—3, and so fix Station 3. The needle can then be placed at point 3, which has thus been found, and a sight can be taken to 7, fixing its position as previous points were fixed.

It will be perfectly obvious that the survey can be continued in this manner to any extent, and it is well on a large survey to ink in each day's work as it is completed, and to keep duplicate copies by means of tracing paper, these being carried by different members of the surveying party, so that if one copy be lost or torn there is the other to depend upon.

Another use for the plane table is that of determining the position of windows or other objects on the ground of a neighbour, with whom one is not quite on friendly terms, in order, for instance, to secure evidence in case



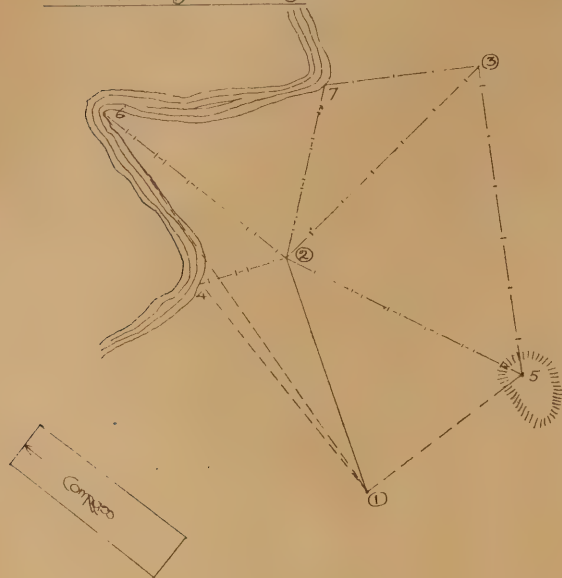
noticed that the lines drawn from Station 2 are shown as dot, stroke, and cross.

With so many points fixed, it is now easy to continue the survey without further measurements. The distance from 2 to 3 can be traversed by any circuitous route, the instrument set up—at the end of a day's march—at the camping place represented as Station 3, the compass again brought into position and made to take its meridian, the needle placed in point 2 and a sight taken to Station 2 with the edge of vane against the needle, the line 2—3 being drawn indefinitely. Assuming that Station 5 can also be seen from the camp, the needle is then inserted over point 5, when, line 5—3 being drawn, it will be found to cut

of disputed right of light. An example is shown of some windows. The distance from A to B on the servient owner's premises could be accurately measured, and sights could be taken from A (shown in broken strokes) and from B (shown in dot and stroke), the parallel lines being ruled on the plane table, when all the positions of the windows belonging to the dominant owner are at once determined to scale with very little trouble.

The work is not so accurate as would be that of a theodolite, but the instrument is much cheaper, can be extemporised by anyone possessed of a drawing-board, a scale, compass, and some needles, and the result is quite sufficiently near to truth to serve most purposes.

Preliminary Survey



DRAINING NORWICH.

IT is practically beyond doubt that the City Engineer's estimate of £152,000, for the work included in the Norwich main drainage scheme, will not be exceeded. But, as was made clear in May last, this sum of £152,000 will not include the extensions of the scheme which will be forced upon the city from time to time, as the city grows in various directions, and which were not included in the original scheme. It is expected that the whole of the works will be in complete operation within two years, but long before that period the bulk of them will be in use. As soon as the power station at New Mills is so far completed as to be capable of delivering air under pressure the whole of the ejectors will be brought into use. This is expected to occur before Christmas. The necessity for finishing sewerage operations in streets through which tramways are to be laid is being kept in view, and with this object Magdalen Street will be the next important street to be taken in hand. In May last

A VERY DIFFICULT PIECE OF WORK

was in progress at Carrow Bridge, where the river had to be crossed. This enterprise has been successfully completed at a probable cost of at least from £500 to £1000 less than if the river had been dammed, to say nothing of the avoidance of the great inconvenience to the traffic on the river if this latter course had been adopted. The work referred to consisted of the construction of a 12in. iron sealed main, a 7in. iron gravitating sewer, and a 3in. steel air main across the river at Carrow Bridge, such construction having to be undertaken without interfering with the navigation of the river. The work was accomplished by advantage being taken of the old 30in. cast-iron pipe laid across the river at this point some thirty years since, when the old low level sewerage system was constructed. Of course, this 30in. pipe was much too small to permit of men working within it whilst laying the new pipes, and the method adopted for laying these pipes was as follows:—Specially designed flexible joints were provided to the pipes. Shafts were sunk at both sides of the river, giving access to the old 30in. cast-iron pipe, one of the shafts being long enough to admit of a length of the new pipes being lowered and jointed. A length of the 12in., of the 7in., and of the 3in. pipes were lowered into

THE BOTTOM OF THE SHAFT,

and arranged in the form of a faggot. Chains were then laid which led across beneath the river to a winch fixed in the bottom of the shaft on the opposite side of the river, and by hauling at this chain the first lengths of pipe were drawn into the old 30in. pipe. Other lengths of pipe were then attached. Before

making the joints, the haulage chain was slacked off, and drawn back through the additional lengths of pipe and secured to a proper attachment. The joints were then made and the process of hauling completed, and so on, until the pipes formed complete tubes across the whole of the river. It was found that this old 30in. pipe was not straight, but that it occupied a reverse groove, somewhat like a flat letter "S." This, of course, increased the difficulties of drawing in the new pipes, but the specially designed joints enabled the new pipes to accommodate themselves to all the irregularities. The collecting manhole has been proceeded with in Carrow Hill, near the main entrance to Messrs. Colman's works, and connections have been established between it and the ejector chamber. Very great difficulties have been met with in constructing this manhole on account of the immense volumes of water which were encountered, but these difficulties have been successfully coped with. This

work has been carried out by men in the direct employ of the Corporation, under the superintendence of the City Engineer. In the Heigham Street and St. Martin's districts, the contractors, Messrs. Monk and Newell, have made rapid progress. Two sections of the large surface-water sewer, and also of the deep sewage sewer in Heigham Street, have been connected up. On the St. Martin's side the sewage sewer has been laid for a considerable distance under private land between Heigham Watering and the Drayton Road, and also in the Drayton Road itself. Progress has been made with the deep sewage sewer in St. Martin's-at-Oak Street, which provides the outfall for the sewer from Heigham Watering to Drayton Road. The river crossings at City Station have been completed. Messrs. Monk and Newell have had great difficulties to contend with in Heigham Street, due to the narrowness of the street, the bad condition of many of the houses, the instability of much of the ground, the presence of large quantities of water, and of large water and other pipes, and to the large size

and great depths of the sewers they have had to construct. At the New Mills the turbine pits have been completed. Four large cast-iron sluices have been fixed, and the large Stoney sluice is quite complete. The construction of the Stoney sluice is

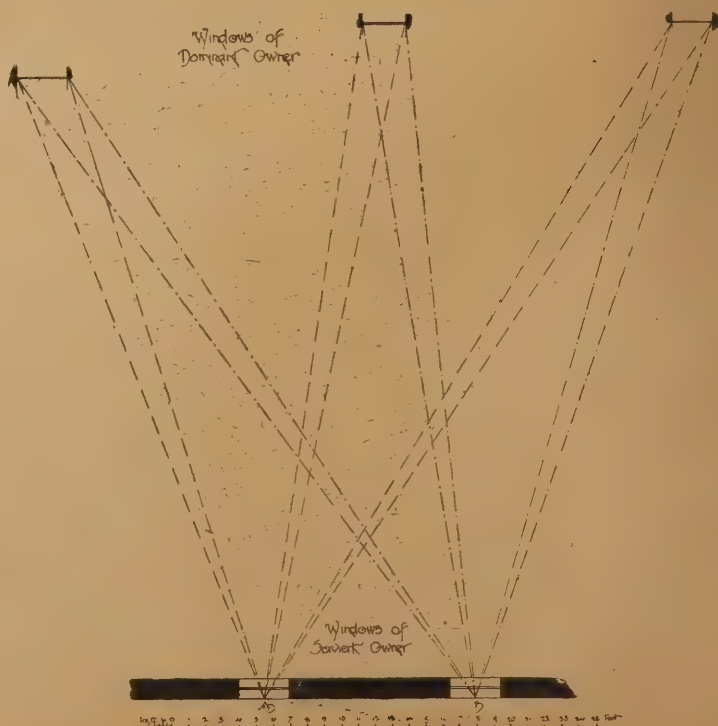
A DEPARTURE FROM SLUICES

previously constructed. Until the introduction by the late Mr. Stoney of the design which bears his name, it was impossible without the aid of powerful machinery to operate large sluices; in fact, very large sluices were not attempted. The particular feature of the Stoney sluice is that, instead of the metal of the sluice sliding on the metal of the frame, a series of rollers is introduced between the sluice and the frame, with the result that the sluice is carried on roller bearings, which have exactly the same action as ball bearings in a case of this sort, and rolling friction only has to be overcome instead of sliding friction. The water-tight joint between the moving sluice and the fixed frame is provided for by properly formed and planed surfaces at the end of the sluice and at the side of the frame, so arranged that a turned metal bar, hanging in an angle formed by the end of the sluice and inside of the frame, is forced tightly into the angle by pressure of water on the upper side of the sluice, and a practically water-tight joint is thus formed. The joint at the bottom of the sluice is formed by the planed bottom edge of the sluice resting on the planed surface of the sluice frame. The sluice thus constructed, although it is 15ft. long and 6ft. deep, can be operated by one man. The power station building has been erected. The building containing the refuse furnace and boilers and the rail pit attached to it are complete, and Messrs. Horsfall, of Leeds, have erected furnaces and boiler settings. The

LARGE STEEL AIR VESSELS

for the air-compressing plant have been delivered on the site of the works, and the whole of the air-compressing machinery has been completed and examined at the builders' works by the City Engineer. The contract for the final section of the work has been let to Messrs. B. Cook and Co., of Battersea. This final contract includes a large quantity of work in Magdalen and Barrack Streets, &c., districts, and also in Bracondale and New Lakenham. The river foundations for turbine pits, sluices, bye-pass,

Plane Table Survey for Rights of Light



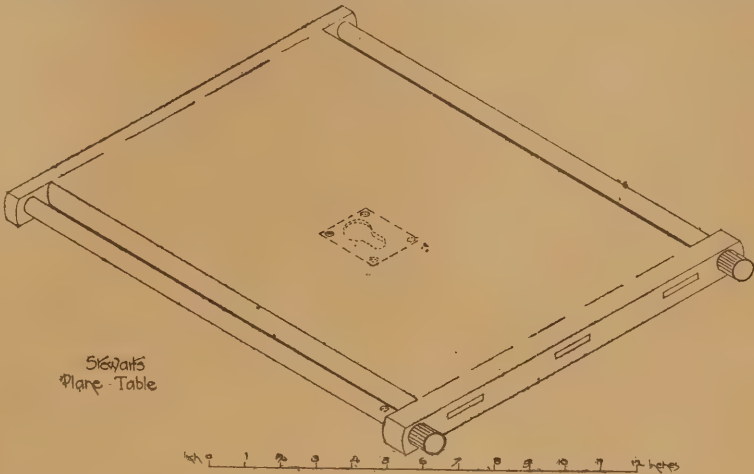
and new steel bridge at New Mills caused great trouble and delay because of the pervious nature of the river bottom, which was found to be very irregular in its formation, in some cases necessitating the carrying of the work to much greater depths than the boreholes indicated. In the construction of the rail pit connected with the refuse furnaces the large brick chimney, which has formed a landmark at the New Mills for many years, had to be underpinned in bad ground for a depth of about 10ft. to 12ft. Mr. Millet has represented Messrs. B. Cook and Co. in carrying out their contract.

A PARAGRAPH in Truth calls public attention to a fact in connection with sanitation which has not been sufficiently recognised in many country districts, and to which we have more than once referred. It is that the cesspool method of drainage, when properly carried out, presents less danger to health than a faulty sewerage on the pipe system. Many towns and villages have got rid of their cesspools, and laid down drain pipes too small for their work, or badly arranged as regards outfall, and the result has been outbreaks of typhoid and scarlet fever. 'Truth' points out, as a curious coincidence, that Maidstone, with a pipe sewerage, has suffered heavily from typhoid, while Rochester, only a few miles off, and drained by means of cesspools, has remained free from the epidemic. It is remarked, however, that Rochester employs a novel vacuum apparatus constructed by Messrs. Merryweather, the fire-engine makers, to empty the cesspools without causing a nuisance; and this fact may have something to do with the matter, as the old plan of employing carts has most objectionable features, and has gone far to discredit the cesspool system with local authorities. It might be well for country places proposing to abandon their cesspool systems to give this matter careful consideration before coming to a decision.

Surveying and Sanitary Notes.

The fact that pigments containing arsenic are dangerous to the health is too widely known to require special mention. It has been especially found that arsenical wall paper, hung in damp rooms, has frequently caused chronic cases of poisoning to the occupants. There are two contrasting opinions as to the way this arsenic poisoning comes about.

through the influence upon the arsenical substances of the paper of organisms which appear when the organic binding agents, such as paste, &c., used for attaching the paper, become mouldy. To solve this question extensive researches have been made for the first time by Emmerling in the laboratory of the Berlin University, the results of which seem to confirm the correctness of the first-mentioned opinion. It was shown that cultures of various bacteria, as well as several mould fungi, were not able to develop any trace of arseniuretted hydrogen from arsenical sub-



Some think that the dust which becomes separated from the paper through wiping or concussion, as well as expansion and contraction, caused by changes in the temperature, is scattered about and enters the lungs of the occupants, thus giving rise to poisoning. According to the views of others, the health of the occupants of rooms provided with such arsenical wall paper is injured by arseniuretted hydrogen gas—assuming that this is formed

strates. Nor did this gas form when paper with paste and Schweinfurth's green, which is known to be highly arsenical, was exposed to moisture and became covered with an abundance of large mould fungi. It may be assumed, therefore, that the first-mentioned opinion, which assigns the cause of the appearance of cases of chronic poisoning to the pulverisation of the coating of the wall paper, is the correct one.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 11	Grangemouth—Sixteen Houses	Co-operative Building, &c., Society Ltd.	G. D. Page, Architect, Old Glebe-chambers, Falkirk.
" 11	Neyland, Pembrokehire—Erection of Chapel	Joint Hospital Board	S. W. Edwards, 7, Lawrenny-terrace, Neyland.
" 11	Chorley—Hospital Wards, &c.	Joint Hospital Board	Jolly and Buckley, Architects, High-street, Chorley.
" 11	Darfield, Yorks.—Ten Houses	Overseers	A. B. Linford, Architect, Kelvin Cottage, Wombwell.
" 11	Hatfield, Herts.—Building Mortuary	Cemetery Committee	A. Whitby, Assistant Overseer, North-road, Hatfield.
" 11	Macclesfield—Vaults, Entombments, &c.	Cemetery Committee	W. F. Taylor, Town Clerk, Macclesfield.
" 13	Farranaleen, Co. Tipperary—Alterations to St. Johnstown's Castle		E. A. Hackett, Architect, Clonmel.
" 13	Nottingham—Extension of Asylum	Committee of Visitors	G. T. Hine, 35, Parliament-street, Westminster, S.W.
" 13	Gelli, Wales—Erection of Chapel	Corporation	Griffiths and Jones, Town Hall, Tonypandy and Pontypridd.
" 13	Guildford—Extension of Shed	School Board	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford.
" 13	Llangynidr, near Crickhowell—School Alterations		F. Baldwin, 8, Lion-street, Brecon.
" 13	Trimdon, Durham—Erection of School		J. Garry, 27, Church-street, West Hartlepool.
" 13	Hampton Wick—Jubilee Fountain		D. Harrison, Hon. Sec, Kenilworth, Hampton Wick.
" 13	Loddiswell and Gara Bridge, Devon—Cottages	Great Western Railway Co.	Engineer, Great Western Railway Station, Plymouth.
" 14	Canterbury—Schoolroom	Joint Hospital Board	F. Heath, Westbere-court, Upstreet, Canterbury.
" 14	Woodbridge, near Guildford—Hospital Additions	County Asylum	E. L. Lunn, 36, High-street, Guildford.
" 14	Devizes, Wilts.—Additions to Lunatic Asylum	Great Northern Railway Co. (Ireland)	C. S. Adye, County Surveyor, County Offices, Trowbridge.
" 14	Annakera and Portadown—Two One-Story Cottages	Great Western Railway Co.	Engineer-in-Chief, Amiens-street, Dublin.
" 14	Raglan, Monmouthshire—Erection of Cottage	Committee	Engineer, Great Western Railway Station, Newport.
" 15	Barrow-in-Furness—Electric Lighting Station		Borough Engineer, Town Hall, Barrow-in-Furness.
" 15	Blundeston, near Lowestoft—Erection of House, &c.	M. Robinson	S. Rivett, 3, South-quay, Great Yarmouth.
" 15	Hartburn—Billiard-Room, &c.	North-Eastern Railway Co.	E. A. Whigham, 59, High-street, Stockton-on-Tees.
" 15	York—Extension of Carriage-building Shops	Viscount Falmouth	W. Bell, Company's Architect, York.
" 15	Merther—Additions to Farm Buildings		G. Gow, Architect, Tregothnau Office, Truro.
" 16	Chorley, Lancs.—Erection of Free Library		Jolly and Buckley, High-street, Chorley.
" 17	Cefn Coed, near Merthyr Tydfil—Library, &c.		R. C. Jenkins, Surveyor, Cefn Coed.
" 26	Buenos Ayres—Central Railway Station	Sanitary Committee	Legation of Argentine Republic, London.
" 28	Manchester—32 Two-story Tenement Buildings	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 28	Manchester—32 Two-story Tenement Buildings and 18 Cottages		City Surveyor, Town Hall, Manchester.
" 31	Frinton-on-Sea—Erection of School	School Board	S. T. James, Architect, Frinton-on-Sea.
1898.			
Jan. 1	Copenhagen—Repairing Cemented Museum Walls	Corporation	F. Meldahl, Offices, Copenhagen.
No date.	Bradford—Offices and Store Rooms		C. H. Hargreaves, Exchange Buildings, Bradford.
"	Feltwell Fens, near Norfolk—Erection of Cottage		Bidwell and Sonz, 11, Bene't-street, Cambridge.
"	Fota, near Cork—Building Rooms, &c.	Right Hon. A. H. Smith-Barry	A. Hill, 22, George's-street, Cork.
"	Great Horkesley, Essex—Addition to "The Cedars"	W. Page	C. E. Butcher, 3, Queen-street, Colchester.
"	Harrogate—Taking Down Villa	G. Goodrich	A. A. Gibson, 8, Cambridge-crescent, Harrogate.
"	Harrogate—Pair of Semi-detached Villas		J. F. Royce, 9, Station-square, Harrogate.
"	Holbeck, Leeds—Rebuilding Inn		A. D. Kaye, 71, Albion-street, Leeds.
"	Kirkstall, Leeds—Three Pairs Semi-detached Villas		J. Jackson, Architect, Barry-street, Bradford.
"	Lanchester—Plastering, &c., Two Houses		F. W. Buckham, Saw Mills, Lanchester.
"	London—Erection of Ten to Twenty Houses		T. B., care of Street and Co., 30, Cornhill, E.C.
"	Middleton, St. George, Durham—Asylum		J. W. Dyson, 67, Grey-street, Newcastle.
"	Morecambe—Four Dwelling Houses		H. Eastwood, 19, Regent-road, Morecambe.
"	Ravenscar, Yorks.—Two Villas	Citadel Company	Estate Office, Ravenscar, Scarborough.
"	Rugby—Citadel Buildings		A. Gordon, 10, Queen Victoria-street, London, E.C.
"	Torrisholme—Erection of Three Houses	Wharfedale Brewery	J. Curwen, Torrisholme.
"	Wetherby, Yorks.—Erection of Brick Chimney		T. A. Buttery, Queen-street, Morley.
"	Wigan—Rebuilding Hotel		W. E. V. Crompton, Architect, Moot-chambers, Wigan.
"	Winchester—Erection of Six Cottages		J. A. Sawyer, 62, High-street, Winchester.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Craigellachie, Scotland—Supply of Bricks...	S. E. Haywood	G. Smith, Distiller, Cragganmore, Craige'lachie.
"	Southwold—House and Two Villas ...	W. Pickersgill	A. Pells, Architect, Beccles.
"	Castleford—Erection of Hotel ...		A. Hartley, Architect, Carlton-chambers, Castleford.
"	Worthing—Erection of Post Office ...		R. S. Hyde, Architect, Worthing.
"	Bodmin—Erection of Isolation Hospital ...	Visiting Committee	R. P. Edyvean, Clerk to Committee, Bodmin.
"	Islington—Block of Flats ...	Owner	W. Stair, 9, Queen Victoria-street, E.C.
"	Edmonton—Erection of Fifty Cottages ...		Fuller and Jackson, 11, Grocers' Hall-court, E.C.
1897.			
ENGINEERING—			
Dec. 11	Swindon—Lighting, Gas Supply, &c. ...	Urban District Council	H. Kinneir, Clerk, Public Offices, Swindon.
" 11	Bathgate, Scotland—Constructing Embankment, &c. ...	Police Commissioners	J. and A. Leslie and Reid, 72A, George-street, Edinburgh.
" 11	Glasgow—Erecting Sluices, Strainers, &c., at Waterworks ...	Corporation	J. N. Gale, 45, John-street, Glasgow.
" 13	Castlebar, Ireland—Water Supply Works, &c. ...	Asylum Governors	T. Griffiths, Clerk, District Lunatic Asylum, Castlebar.
" 14	Bruges, Belgium—Harbour Works ...		Provisional Government, Bruges.
" 14	Barking—Heating Baths, &c. ...	Urban District Council	C. J. Dawson, Surveyor, Public Offices, East-st., Barking.
" 14	Portsmouth—Repairing, &c., Wharf Wall ...	Corporation	A. Hellard, Town Clerk, Town Hall, Portsmouth.
" 14	Glasgow—Construction of Railways ...	Caledonian Railway Company	G. Graham, C.E., Buchanan-street Station, Glasgow.
" 14	Dublin—Steel Girder Covered Footbridge ...	Great Northern Railway Co. (Ireland) ...	Engineer-in-Chief, Amiens-street Terminus, Dublin.
" 15	Newport—Electric Light Plant ...	Corporation	Borough Engineer, Newport.
" 15	Barrow-in-Furness—Boilers, Engines, &c. ...	Corporation	Kincaid, Waller, & Manville, 29, Gt. George-st., Westminster.
" 15	Corpach, near Lochaber—Water Supply ...	District Council	J. Paterson, C.E., Fort William.
" 18	Kirkcaldy—Heating Memorial Halls ...		Dunn and Findlay, 35, Frederick-street, Edinburgh.
" 20	Canterbury—Electric Light Plant ...	Electric Lighting Committee	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 23	Workington—Heating Central Stoves ...	District Industrial & Provident Soc. Ltd.	W. G. Scott and Co., Victoria-buildings, Workington.
" 27	Carrickfergus—Retort Bench, &c. ...	Gas Company, Ltd. ...	R. Campbell, Manager, Carrickfergus.
" 27	Braila, Roumania—Wooden Bridge, &c. ...		Prefect, Braila, Roumania.
" 28	London, N.W.—Arc Lighting Extensions ...	St. Pancras Vestry	Chief Clerk, Electricity Department, 57, Pratt-street, N.W.
" 30	Catanzaro, Italy—Tramway ...		Municipal Authorities, Catanzaro, Italy.
" 31	St. Gilles-lez-Bruxelles—Gasworks ...	Council	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway ...	Government	Central Directorate, Public Works, Porte Alegre.
" 31	Denbigh—Laying Water Mains, &c. ...	Asylum Visitors	Wood and Brodie, 3, Cook-street, Liverpool.
1898.			
Jan. 9	Athens—Dock Extensions ...		Chancery of the Monarchie Attaque and Béotie, Athens.
" 11	Northallerton—Iron Bridge ...	Rural District Council	W. Fowler, Clerk, Council Offices, Northallerton.
Feb. 26	Pernambuco—Port Works ...	Government	Brazilian Ministry of Public Works, Rio de Janeiro.
No date.	Armagh—Supply and Erection of Pump ...	Town Commissioners	W. Donnelly, Town Commissioner, Armagh.
"	Blandon-on-Tyne—Laying Socket Pipes ...		Blaydon Main Colliery, Blaydon-on-Tyne.
1897.			
IRON AND STEEL—			
Dec. 11	Bristol—Castings, Ironmongery, &c. ...	Sanitary Authority	T. H. Yabbicom, City Engineer, 51, Prince-street, Bristol.
" 11	Glasgow—Furnace Bars, Malleable Iron, &c. ...	Messrs. Burns	Messrs. Burns, 30, Jamaica-street, Glasgow.
" 11	King's Lynn—Castings, &c. ...	Corporation	E. J. Silcock, Borough Surveyor, King's Lynn.
" 11	Stockton-on-Tees—Iron Castings, Bolts, &c. ...	Tees Conservancy Commissioners	Engineer of the Commissioners, Stockton-on-Tees.
" 13	Walton-on-Thames and Hersham—Cast-iron Pipes ...	Urban District Council	W. H. Radford, C.E., Angel-row, Nottingham.
" 13	South Hetton—Iron Castings, &c. ...	Coal Company Limited	J. R. Lambert, South Hetton, Sunderland.
" 13	Kinson, Dorset—Iron Fencing, &c. ...	School Board	— Hayward, Kinson Village, Dorset.
" 13	Hamsterley, Durham—Colliery Stores ...	Owners	Guildhall-chambers, Newcastle-on-Tyne.
" 13	Trimdon Grange, Durham—Iron Castings, &c. ...	Owners	Storekeeper, Trimdon Grange Colliery, Co. Durham.
" 13	Lanchester—Supply of Cast-iron Pipes ...	Water Committee	J. Cook, Water Engineer, Town Hall, Lancaster.
" 15	Macclesfield—Castings, Ironmongery, &c. ...	Corporation	Borough Engineer, Town Hall, Macclesfield.
" 20	Manorhamilton—Supply of Goods ...	Northern Counties Railway Company	R. E. Davis, Lurganboy, Manorhamilton.
" 28	Glasgow—Steel Tramway Rails ...	Corporation	J. Young, 88, Benfield-street, Glasgow.
" 29	Adelaide, South Australia—Steel Bars, &c. ...		Agent-General, Tender Board of Adelaide, London, E.C.
" 29	London, E.C.—Wrought and Firebar Iron ...	Bengal and North-Western Ry. Co. Ltd.	E. L. Marryat, 237, Gresham House, Old Broad-street, E.C.
" 31	Denbigh—Cast-iron Water-pipes ...	Asylum Visitors	Wood and Brodie, 3, Cook-street, Liverpool.
1898.			
Jan. 1	London, W.—Various Stores ...	St. George's, Hanover-square, Vestry	G. Livingstone, Surveyor, Parish Offices, 1, Pimlico-rd., W.
No date.	Ryhope—Supply of Stores ...	Coal Company Limited	Colliery Office, Ryhope, near Sunderland.
"	Tunstall, Staffs.—Supply of Stores, &c. ...	Chatterley-Whitfield Collieries Ltd.	Company's Offices, Tunstall, North Staffordshire.
1897.			
ROADS—			
Dec. 11	Windsor—Road, Sewers, &c. ...	Alma Park Estate Company	T. V. Davison, Elmdale-chambers, Frances-road, Windsor.
" 13	Blackburn—Supply of Granite Setts ...	Highway Committee	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
" 13	Swindon—Road Works ...	Urban District Council	H. J. Hamp, Surveyor, Regent-circus, New Swindon.
" 14	West Ham, E.—Making-up Roads & Paving (2 Contracts) ...	County Borough	L. Angell, Borough Engineer, Town Hall, Stratford, E.
" 14	London, S.W.—Granite, Thames Ballast, &c. ...	H.M. Commissioners of Works	H. M. Office of Works, 12, Whitehall-place, S.W.
" 15	Northampton—Broken Granite, Setts, &c. ...	Highway Committee	W. J. Brown, Borough Surveyor, Guildhall, Northampton.
" 15	Newcastle-on-Tyne—Supplying Stones, &c. ...	County Council	County Surveyor, Moot Hall, Newcastle-on-Tyne.
" 16	Blackpool—Street Works ...	Corporation	J. Wolstenholme, Borough Engineer, Blackpool.
" 17	Preston, Lancs.—Paving, &c. ...	Corporation	Borough Engineer, Town Hall, Preston.
" 18	London, E.C.—Wood Paving ...	St. Luke's (Middlesex) Vestry	Surveyor, Vestry Hall, City Road, E.C.
" 21	Reading—Levelling, Paving, &c. ...	Sanitary Authority	J. Bowen, Borough Engineer, Town Hall, Reading.
" 24	Horsham—Road Materials and Cartage ...	Roads and Bridges Committee	W. B. Purser, 31, Bedford-road, Horsham.
" 24	Horsham—Supply of Broken Granite ...	Roads and Bridges Committee	W. B. Purser, 31, Bedford-road, Horsham.
1898.			
Jan. 3	Hornsey—Paving, Levelling, &c., Roads ...	Urban District Council	E. J. Lovegrove, Offices, Southwood-lane, Highgate, N.
No date.	Knarborough—Roads, Sewers, &c. ...		A. A. Gibson, 8, Cambridge-crescent, Harrogate.
1897.			
SANITARY—			
Dec. 11	Penistone, Yorks.—Pipe Sewers, &c. ...	Urban District Council	W. Spinks, 29, Park-row, Leeds.
" 13	Walton-on-Thames and Hersham—Sewerage Works ...	Urban District Council	W. H. Radford, C.E., Angel-row, Nottingham.
" 14	Barton Regis, Bristol—Scavenging ...	Rural District Council	A. P. J. Cotterell, Lonsdale-chambers, Baldwin-st., Bristol.
" 14	Pontefract—Pipe Sewers, &c. ...	Rural District Council	M. Patterson, 35, Manor-row, Bradford.
" 17	Glasshoughton, near Pontefract—Drainage Works ...	Rural District Council	M. Patterson, 35, Manor-row, Bradford.
" 19	Leeds—Construction of Lavatory and Conveniences ...		City Engineer, Municipal-buildings, Leeds.
" 21	Tottenham—Brick, Concrete, and Pipe Sewers ...	Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
1898.			
Jan. 5	Lisbon—Sewerage and Drainage Works ...	Secretary of State	Commercial Department, Lisbon.
No date.	Amble—Cutting and Laying Pipe Sewer ...	Urban District Council	W. Gibson, 31, Queen-street, Amble.
1897.			
TIMBER—			
Dec. 15	Macclesfield—Supply of Timber and Hardwood ...	Corporation	Borough Engineer, Town Hall, Macclesfield.
1898.			
Jan. 3	Valmaseda, Spain—Sleepers, Four Locomotives, &c. ...	Municipal Authorities	Municipal Authorities, Valmaseda, Spain.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 14	London, N.E.—Electric Lighting Scheme ...		Hackney Vestry.
" 14	London, S.W.—Designs for Dwellings ...		London County Council.
" 15	Dorking—Designs for Workhouse Infirmary ...	(No first), £15, £5	Guardians.
" 17	Pestnig—Temporary Eisteddfod Pavilion ...	£10 10s.	Committee.
" 31	Altrincham—Plans for Offices, &c. ...	£20, £10	Urban District Council.
1898.			
May 1	Belper—Sewage Disposal Schemes ...	£52 10s., £26 5s.	Rural District Council.



IN MEMORIAM.

MR. JOHN L. PEARSON, R.A.

It is little more than twelve months ago since we had, editorially, the opportunity of enlisting Mr. John Loughborough Pearson's own interest and assistance in regard to a monograph upon his work, designed for the pages of our contemporary publication, *The Architectural Review*. Mr. Pearson's virile and prolonged architectural career then seemed in no wise ending; his eyes were as bright and keen as in the earlier years, when he himself was enthusiastic in the ecclesiastical architectural revival in which he played, for more than half a century, so significant a part. His short, stalwart figure was full of the active lines of fine old age, and his intellect was as interested and as sensitive as ever to the architectural problems and possibilities of the day. Underneath the artistic austerity of the man there was a genial kindness and heartiness which, in many ways, is indigenous to those northern counties from one of which he came. The career of Mr. Pearson and the career of the Gothic Revival may have been said to synchronize, and it would be impossible for the architect and the archaeologist of the future to consider the English work of the nineteenth century without considering at the same time that gift for design which so well earned the Academic title of which Mr. Pearson was justifiably proud. The son of Mr. William Pearson, a water-colour painter, John Loughborough Pearson was born at Brussels in 1817. He commenced his professional career at the age of fourteen, when he entered the office of Ignatius Bonomi, architect of Durham, afterwards coming to London, where he was first with Salvin, and later with Phillip Hardwick, R.A. Mr. Pearson's own private practice began in 1843, in which year it may be noted he was engaged upon the drawings of Lincoln's Inn, a building which has been considered to be one of the landmarks in the history of the Gothic revival, and which was built by Hardwick. Mr. Pearson was appointed architect to Lincoln Cathedral in 1870, and latterly had under his care many of our ancient cathedrals and churches. He was elected a Fellow of the Society of Antiquaries in 1853, a Fellow of the Royal Institute of British Architects in 1860, an Associate of the Royal Academy of Arts on January 29th, 1874; and attained the highest of all honours to an architect, that of Royal Academician, on November 27th, 1880. He obtained a gold medal at the Paris Exhibition of 1878, and was made a Knight of the Legion of Honour on November 15th in the same year. Although latterly, Mr. Pearson was never to be seen at the meetings of the Royal Institute of British Architects, he was at one time a member of the Council, and the Royal Gold Medal of the Society, the annual gift of Her Majesty the Queen, was awarded to him in 1880. For many years he acted as one of the consulting architects to the Incorporated Church Building Society, an honorary appointment which must often have been somewhat arduous. He has always resided

In our notice of Mr. Pearson's work, we give extracts—through the courtesy of the Editor—from an article which appeared in early numbers of *The Architectural Review*.

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in London. He started practice in Keppel Street, Bloomsbury, moving thence to Delahay Street, Westminster, and Harley Street, Cavendish Square. His offices and residence, at the time of his death, are in Mansfield Street, Portland Place. Mr. Pearson at once identified himself with what has been called the Gothic revival, and as early as 1843-4 we find him engaged in the erection and restoration of various village churches in Yorkshire. A careful and conscientious student of old Ecclesiastical Architecture, his early works bear rather the impress of his surroundings than of that vigorous and sometimes daring individuality which is displayed in his more mature efforts. The most important work of this date is, perhaps, the new church of North Ferriby, erected, with its tower and spire complete, in 1846; it is, for its date, a remarkably good specimen of the kind of church which was afterwards more fully developed in St. James', Weybridge, and Holy Trinity, Westminster. The latter, Mr. Pearson's first London church, was begun in 1850. Eight or ten years had elapsed, and in this interval the study of the Mediæval Architecture of France, fostered by the influence and example of the late Sir Gilbert Scott, was exerting a modifying influence on the Architecture of England. St. Peter's, Vauxhall, exhibits very marked traces of this influence. A somewhat unusual feature in the designs of that time was the apsidal termination of the chancel, a common enough treatment in France, but one which never seems to have found favour in Mediæval England. Instances of its adoption show an obvious foreign influence, as at Westminster, Peterborough, Norwich, and the fine Abbey Church of Muchelney, Somerset, the plan of which now exists only up to the ground level. With these exceptions and a very few village churches of limited dimensions, the square end may be said to be almost universal. The lapse of another eight or ten years brings us to the date of St. Augustine's, Kilburn, a church of much larger proportions than either of those already alluded to. The east end, which is here square, with its bold triplets in two tiers, and the west end, with its double arcades and great rose window over, are particularly effective. The Church of St. John the Evangelist, Red Lion Square, followed in 1874, and is a fine example of how an awkwardly shaped site may be turned to the best advantage. This is a very beautiful example of the purest Early English work, and its detail is well worthy of careful study. Soon after the date of this church came Mr. Pearson's most important work, Truro, the only English cathedral consecrated since St. Paul's, London. In point of size, Truro does not compete with the great French churches, nor with the largest of our English cathedrals, but it may be classed, when finished, with such buildings as Rochester, Wells, and Lichfield. The massed effect of the cathedral, even in its incompleteness, is impressive by reason of its sincerity, solidarity, and repose. There is a foreign air in the clustering familiarity of the quaint old Cornish city, but on the north side you are enabled to perceive at once the strength and the simplicity of Mr. Pearson's scheme. No doubt, as the years bring what will be the inevitable completion, the significance of Mr. Pearson's treatment of a great opportunity will become more and more apparent. There is enough, already, to justify, indeed to emphasise, this view, for we must remember that no severer test can be applied to the Art of a man than that involved in the partial dismemberment of a completed scheme. So much was at stake, and so much, alas, had to be left. But few look upon Truro Cathedral without feeling that Mr. Pearson's work is a credit to a century which has seen at once the revival and the partial eclipse of Gothic

style. Among other important churches which Mr. Pearson has carried out may be mentioned Wentworth Church, Yorkshire—a good specimen of "Geometrical Gothic"; All Saints, Hove; the Cemetery Chapel, Malta; the Catholic Apostolic Church, Maida Hill—Mr. Pearson's most recent London church. These are only some of his largest churches. There are numerous small ones scattered about England, of which Titsey Church, Surrey; St. Peter's, Laverstoke, Wilts.; and Norley Church, Cheshire, might be cited as examples. Lincoln should head the list of cathedrals, as it was the first entrusted to Mr. Pearson's care. Here, as in all Mr. Pearson's restorations, every ancient stone was numbered, and replaced in its original position. At Bristol, Mr. Pearson's work consists mainly of the completion of the two western towers from Mr. Street's designs, the restoration of the fine Early English Lady chapel, and the north transept window. The beautiful Norman west front of Rochester Cathedral has been most carefully repaired under Mr. Pearson's direction, and the turrets completed. At Exeter Cathedral, Mr. Pearson's principal works consist of rebuilding a portion of the cloister, and forming a chapter library over. In London, the restorations of Westminster Abbey and Westminster Hall are well known. The principal work at the Abbey has consisted in completing the upper part of the great north transept, the three porches only having been taken in hand by Sir Gilbert Scott. Mr. Pearson's domestic work, considered chronologically, should begin with the mention of Treberfydd, in Wales, a good-sized country house, somewhat after the manner of Haddon Hall or Compton Wynyates, built in 1848. Following this was Quarwood, in Gloucestershire, a Gothic house with traceried windows, steeply-pitched roofs, and many turrets. Roundwick, in Sussex, begun as a farmhouse, grew to be much larger, and is a picturesque building of stone, brick, and half-timber work. Westwood House, Sydenham, is not a new building, but has been completely remodelled and extensively added to. The style adopted is that used in old French chateaux, and is, we believe, the only example of Mr. Pearson's work in this manner. At Cambridge, Mr. Pearson's domestic work may be advantageously studied, as he has made extensive additions to Sidney Sussex College, Emmanuel College, and the University Library. The office building on the Embankment for the Honourable W. W. Astor is a very important secular work. Some of the late Mr. Pearson's more important works have now been briefly referred to, in all of which there is an individuality present that enables one who is conversant with his methods to recognise his hand. To describe this quality is most difficult, but, broadly speaking, we should say in all his works a chief characteristic is simplicity of form and outline, great care being always taken not to interfere with it by inappropriate or coarse detail. This is particularly noticeable in his treatment of spires and turrets, where the outline is considered from every point of view. Another attribute of Mr. Pearson's buildings is what must be described as the absence of hardness. The detail of Mr. Pearson's stonework is always interesting to study, as there is so much variety in it; and in the art of vaulting he was unsurpassed. However difficult may be the problem or intricate the plan, the result was always pleasing. Our special Truro correspondent writes:—"The solemn strains of the Dead March in Saul echoed an eloquent tribute throughout the beautiful Cathedral Church of Truro after the morning service on Sunday last, to the memory of its revered and honoured architect, J. L. Pearson, R.A., whose worth and loss found dignified and touching expression from the pulpit."

H.M.S. ROYAL CHARTER:

OR,

THE NEW HAND AT THE PUMP.

[Incorporated in the seventh year of William IV., and the fiftieth of Victoria; dined in the sixty-first Victoria.]

"LOCKES, BOLTES AND BARRES SOON FLIE ASUNDRE."—YE WOLFE [IN YE FOIDE].

Ancient Ballad said to have been sung at the Festival Dinner of the Royal Institute of British Architects, in commemoration of the Sixtieth Anniversary of Her Majesty's Accession and the incorporation of the Institute, held in the Banqueting Hall, Whitehall Rooms, Hôtel Métropole. — Vide Wren's Times.

When it came to heaving the double lead [Editorial note] of the wicked and nautical Royal Charter [in 5 degrees longitude, 0000 latitude, Conduits Straits, R.I.—B.A. Cantab], a calm fell on the assembled host of Captains of Industries—all wafted to the same Port ('47) by the self-same gust of the Prevailing Trade (Wind). Each equipped with stores of archaic Gestes, Elgin friezes and antique quibbles lately disinterred from the buried Times, all eyes turned to the central seat, where set-square to all the winds of heaven the Post-Captain sat: Warmed by the flame of many concentrated eyes he expanded: "Gentlemen, I give you the good ship Royal Charter! Though it lie in the Roads of Fame, may it never be more in the way than it is now! Standing as I do to-night on the shore of this sea of foam-white napery, girt by a glorious champaign of famous faces with black breakers in the background, the nautical simile seems to me a good one, for are not we, too, *going down*?—to Posterity I mean; and is not our work done?—for the day—of course, as was theirs who sank as we beneath the waves of popular esteem. I need not trouble my learned captains with my ideas on the development of Gothic from the early-pointed prow of the Ionic bargeboard. I would rather say somewhat of the battlefield of to-day, whereon rages as ever the eternal conflict of past and future, the unappeasable strife of styles, which, in whatever style of strife it be conducted, must engage each one of us fore and aft. Gentlemen, let us like that other noble Charter, go on sinking—our differences! May it ever be said of us that, whatever we did in our lives, we dined true to our country and our principals. Let us never abandon our age. It shall never be said of us that we were designing men, for are not our thoughts governed by presidents? Let us cling

to those most cherished possessions, to those apples of our eyes—our pupils—that so we may be *boyed* over the troublous waves of time. Gentlemen, though we have fasted these many years, at length we feast; but who shall keep the watch of our future feasts? Need I say that we have here one whose chiselled sentences, whose architectural periods, and, may I add, whose periods of Architecture are world-renowned, adjectives flow—forgive me if I cannot stay them—glittering, brilliant, evanescent as the Bulle d'Air in the magnum before him. I hear murmurs—Mumm's the word, why should we Heid-seick quarrels. Now let our Nientenant speak!"—And the Nientenant said: "Gentlemen, as Commander of the H.M.S. Bulle d'Air (as our Post-Captain humorously calls me) I am deeply sensible of the honour conferred. I am, in fact, so over-bubbling with gratitude that I can say no more. I will only, with a certain amount of address, paraphrase the address of our Post-Captain and that of our Naval Institute, and say "May we all go down the Conduit Straight into the sure hope of everlasting fame."—Then the Commission repaired to the hold!

MR. JOHN RUSKIN

AND

"THE ARCHITECTURAL REVIEW
ART ANNUAL."

IT will be known to the readers of THE BUILDERS' JOURNAL that the Christmas Double Number of The Architectural Review contains the reproduction of an exquisite drawing by Mr. John Ruskin, entitled "Budding Sycamore, Sketched at Greta Bridge." The drawing has been much admired, and bears Mr. John Ruskin's own autograph. The following letter has been received:—

"Brantwood,

"Coniston Lake.

"DEAR SIR,

"I gave The Architectural Review Art Annual to Mr. Ruskin, who desires me to thank you very much. He has looked through it all with great interest and pleasure, and says he considers the reproduction of his own drawing quite admirably done."

The letter is signed "Joan Ruskin Severn."

It will be of further interest to readers to know that Mr. Ruskin has placed a considerable number of drawings, never before published or reproduced, at the disposal of the Editor of The Architectural Review, and that many of these drawings are illustrative of Venice.

MODERN ARCHITECTURAL
PROBLEMS.*

AS ILLUSTRATED BY SOME EDINBURGH BUILDINGS.

BY PROFESSOR G. BALDWIN BROWN.

(Continued from page 382.)

THE difficulty in the way of adopting this solution of the problem of a modern style resides in the fact that the artistic treatment of the necessary features of the wall, with its plinth and cornice, broken up in accordance with internal divisions and pierced with openings, has not in practice been found sufficient by designers who have used the style. Additions were soon made by the Tuscan architects to this simple scheme, and the shafts and pilasters and pediments of the old Classical Architecture of the colonnade came to be used to divide up and enrich the elevation. This practice has become habitual, but there are plenty of examples to show that neither for monumental grandeur nor for beauty is it a necessary practice. These external features, not provided by use and construction, are employed very sparingly in the work of Adam and Playfair already referred to, though in other structures of the time of the latter architect they were much more abundant. Playfair's own colonnade round the Royal Institution in Princess Street is exceptional in his work, and is by no means a happy device.

A NEW BREATH OF CLASSICISM.

There was, indeed, a new breath of Classicism breathed into the traditional Renaissance style of the eighteenth century owing to the influence of the discovery of Herculaneum and Pompeii, and this Classicism was, as we have seen, carried to extremes in work like the Edinburgh High School, which may be appropriately called "Neo Classic." The buildings referred to above do not, however, as a rule use the colonnade except in connection with the portico in front of a doorway, where it may be said to have a natural significance. A projecting roof, in porch-form, in front of a door at which people may presumably have at times to wait, is in our northern climes motivated by considerations of climate. Such a porch needs supports on the exterior, and these naturally take the form (combining strength and convenience) of round posts. Why need these round posts assume the shape of the old classical column? may be asked by the modern practitioner, and the answer, though it may not satisfy some modern aspirants, has yet some solid basis in common sense. Traditional features have, as we have already seen, a certain advantage in themselves over novelties, but there is this also to be said for them, that the classical columns are singularly perfect both in beauty of outline and proportions, and in the expressiveness of their forms as conveying the idea of their position and functions. If any modern designer can produce shapes more graceful and more fitted to their purpose we shall have nothing but praise for him. In the meantime, when, in a building of the character under consideration, columns are motivated by the need for a porch, there is nothing forced or artificial in the use of the familiar and beautiful Grecian shafts. It would be hard, however, to persuade the architectural community as a whole that this Renaissance style, though prized, as we have seen, in the modern world of the West for its own use and convenience, has for to-day any more validity than a dozen other styles that the various "revivals" of the century have brought successively into vogue.

(To be continued).

* Extracts from an address delivered before the Edinburgh Architectural Society on December 1st.

HALF TIMBER WORK.

BY W. A. MELLON.

A PART from its scarcity or the difficulty of quarrying stone, and the non-existence in mediæval times of brick, it may be assumed that the preference for timber as a building material was a taste inherited from a very early age, when the primitive log hut satisfied the wants of a rude and warlike people, bent constantly on conquest, and with but little thought for the development of the luxuries and refinements of a home, and when, in short, it must practically have been the only available building material—well adapted, however, to the requirements of the times. Though supplied in abundance by the vast pine forests of Northern Europe, the woods of England could not long withstand the drain upon them occasioned by the wasteful method originally introduced by the northern conquerors, and the foundation of the style as now known

its sole inspiration a desire to out-do all competitors—past, present, or future.

This system of "post and pan" houses, as they were called, obtained all over England, as well as France, Germany, and Belgium, during the Middle Ages. London was built in this way until destroyed in greater part by the Great Fire. From the fact, however, that in that town all, from highest to lowest, were bound by law to whitewash their houses once a year, it may be assumed that the constructive timbers of the houses were not usually exposed, but were plastered all over. This is a treatment common to many countries, and of which any old English or Scotch town usually possessed many admirable examples. In point of beauty it perhaps does not fall far short of the phase more particularly dealt with herein, and while from their extreme simplicity these houses may sometimes be passed over in favour of the more elaborate examples, they yet present many studies of good proportion and picturesque grouping of parts which are perhaps the qualities most

although the use of Gothic detail gives many of them at first sight an earlier appearance, the earliest are probably of the time of Henry VII.

While the development of the style in its simpler and earlier stages is to some extent matter of conjecture, a review of its progress may now be taken up with a little more certainty based upon observation of known examples. In the older examples the timbers are massive baulks placed so near together that there is quite as much post as panel. As time went on, however, timber became still more scarce, and the main pieces were placed further apart and the panels enlarged. About the latter part of the sixteenth century ornamental quartering was introduced in the better examples. For this purpose naturally curved pieces and the angular parts of crooked boughs, which enter so largely into the composition of oak trees, were selected and cut down the middle, and the two sections were halved into the smaller timbers and framed into the principals, matching one another.



MORETON OLD HALL. FROM A PHOTOGRAPH.

was no doubt primarily due to the desire for a more economical treatment of the material. The logs were hewn up, each yielding several square posts, which, when fitted together, formed the skeleton framework of the structure. The spaces or panels so formed were then lathed with hazel wands, or other ground-work, to receive a solid infilling of plaster composed of clay and straw; or sometimes two such panels were formed with an air space between, which was doubtless found to be to some extent more efficient as a non-conductor of heat and damp. Latterly the exposed framework, for its better preservation, received a coat of paint—the colour selected in this country being usually black—and the plaster panels were whitewashed, offering a very cheery contrast. From this modest beginning has been handed down, for the study and emulation of present day architects, a fully developed and picturesque style of domestic work, emphasising the oft-repeated lesson that any branch of Art developed truthfully and naturally must necessarily rise superior to that taken up at the dictate of a passing fashion, and too often having for

conspicuously absent in the greater part of modern work. In this respect the study of traditionally high buildings, as those of Edinburgh, is perhaps not so profitable as that of the cottages in the South of England. In these latter may be seen more especially the charming effect derived from the skilful arrangement of roofs, which in small buildings must be an all-important feature.

About the fourteenth century the great woods of the South and West of England were being cleared, and the building material thus liberally provided was taken full advantage of by the increasing population, and as a natural consequence it is found that where the forest was thickest there the houses of timber construction most abounded. Very few of the examples existing in England at the present time date back to the fifteenth century, and it is extremely improbable that any are of earlier date. Even those that do remain have been repeatedly repaired or added to, the ornamental parts being probably changed to some extent also to suit the taste of the period. The great majority of existing examples are of the time of Elizabeth and James I., and,

This material would have been practically useless for any really constructive purpose, and the natural curvature of the pieces bore great artistic value as a contrast to the main rectangular framings. In common buildings, and at a later date, straight braces were often employed in place of curved, but never with such a pleasing effect. The plaster panels were sometimes stamped or modelled into patterns or painted in colours. In some later instances, after the revival of brickmaking, plaster was altogether dispensed with, and the spaces were filled in with brickwork set in herring-bone fashion; and when the grey oak was left unpainted the effect was very harmonious. The system of brick infilling does not, however, equal the other so far as waterproof qualities are concerned, and the usual black and white, commoner in the north of England, was in this and other respects the more efficient.

There is an important, though not invariable, feature which is strongly characteristic of ancient timber buildings—namely, the overhanging to a greater or less extent of the upper stories over the lower. This practice



DERBY HOUSE, WATER GATE, CHESTER. SKETCHED BY J. HUTCHINGS.

may have originated in walled towns, which places, yearly increasing in prosperity, became less able as time went on to accommodate the increasing number of inhabitants. Every foot of space became daily more valuable, and every contrivance was used in order to gain as much internal room as possible. This may also have been a reason for the continued erection of timber houses in towns in a more peaceful age, as, by the thinness of their walls and the successive projections of the upper stories beyond the line of the ground floor, much space was gained, such houses being much more capacious than those built of brick or stone could possibly have been. Another equally strong reason for the practice was the protection of the fronts from the weather, every precaution having to be taken for their preservation, carved timber and even plain timber, when used in conjunction with plaster, being somewhat susceptible to damp. It also incidentally afforded a shelter to the streets of warmer climes from the rays of the midday sun. The roofs in towns were commonly reared in high and narrow ridges with their ends set towards the street, and over the top-most story of the house rose the high-pitched gable with barge-board and finial.

The leading features of a normal house of this type are then briefly these. The lower story of the house was sometimes of stone, partly sunk, in which case it was almost invariably vaulted over. These lower apartments, or crypts, of which several examples may be seen at Chester at the present day, probably served as store-rooms for valuable goods, or merely as cellars according to circumstances. In other cases this story was of timber, and the superstructure was almost in every instance of timber, it being only amongst the most wealthy class that the upper stories

were of more durable material. Country mansions and some town houses of more than usual pretensions usually possessed a large central hall or banqueting room. The roofs of these halls were commonly of massive open timber work, often richly ornamented, and during the reign of Elizabeth rich oak wall panelling was introduced. In the reign of Elizabeth was also first introduced in the better class houses a long gallery for music and dancing—probably the first dawn of the modern drawing room—which, aided by the affectation of foreign manners at the time of the Restoration, and the ever-widening gulf between master and servant, slowly but surely witnessed the decay of the common hall, a feature in an English home which it may be hoped lies only dormant. On one side of the hall was the parlour, &c., and on the other, the kitchen and offices. In the upper part of the gable of many of the houses—as in the “Bear and Billet” inn at Chester—is found a door or window, the attic room to which it communicated being generally used as a store-room or granary, as evidenced by the remains of hoisting apparatus often found within.

At the beginning of the fifteenth century pure Gothic had been flourishing for two centuries, and it is but natural, therefore, to find the houses of that period treated with Gothic forms and details. The timbers are decorated with all the delicacy of the work of that period, having probably been wrought by the same men, who are responsible for the best work of the Gothic cathedrals. Moulded and carved strings are planted on the framing. Jambs of doors, angle and other uprights have moulded caps and bases, or are treated with richly traceried panels, and the heads of windows are carved and cusped. Of this style in its fullest development, Moreton Hall and

Bramhall Hall, both in Cheshire, may be taken as typical examples. The first thing that strikes the eye in the courtyard of Moreton Hall is the picturesque grouping of the large bay windows, and the masterly way in which the extremely elaborate and irregular work is contrasted and given point to by the comparatively plain gable adjoining, for the men of those days well knew the value of such contrast. Without the plain gable as a set-off, the rich work would lose a great part of its interest. For the same reason the barge-boards are only slightly moulded. The moulded and carved work is very delicate, perhaps even too much so for exterior work, the carved member immediately under the ties in the gables having quite a lace-like appearance. The small panels are treated with simple Gothic forms in a skilful manner, and are specially interesting as showing the treatment of panels as panels, in contra-distinction to the more usual custom of designing the ornament with reference to the inclosing timbers. While the former may be the better method in the case of applied ornament, yet when the ornament, such as simple curved braces, possesses any constructive value, it is better to design it with reference to the main timbers in order that such may be more fully brought out. The glazing of the windows in this house might well form a study in itself of leaded work, so varied are the patterns to which it is wrought.

Barge or verge boards play an important part in half-timber work. They were originally simple boards carried on the projecting plates, purlins and ridges to cover and protect them, as well as the gable wall, and give a better finish to the elevation. They were in course of time finished with an ornamental finial, or drop, and moulded, and in innumerable instances were elaborately carved and pierced, many of the examples being extremely beautiful. These latter, of course, required a simple wall surface as background to give them their full æsthetic value, and when there was much carved work in other parts of the building, were almost indispensable in keeping up the general tone of the design.

In the course of time the Renaissance influence reached England, coming at first in no very seductive form, but little by little ousting Gothic from the field. In England and France the change was very slow, and lasted through the sixteenth century. The new style first made itself felt in the town and more important country houses, but the provinces as a whole were unaffected by the change, and houses continued to be erected in the old traditional style even during the seventeenth century. Fashionable and up-to-date architects are, however, not peculiar to modern times, and those of that period quickly embraced the new style, and in their imperfect knowledge of it, and with no models worthy of the name to guide them, bequeathed to their successors some “wonderful” details, perhaps more calculated to amaze than inspire by their beauty. Their buildings teemed with quaint conceits, grotesquely carved pilasters and consoles, Gothic and classic detail being mixed up in a most incongruous and, to a purist, painful manner. In spite of these peculiarities, however, the Elizabethan architects treated their buildings in such a manly and broad spirit as to atone in their free and bold lines for all their shortcomings in matters of detail; and there is in general a bigness about their work which all the purest detail in the world could not of itself give, nor all the bad detail destroy.

The barge-boards had fallen from their high position, it might almost be said literally, for they as formerly known had totally disappeared. A poor classic enrichment at first took the place of the beautiful Gothic work, and even this gave way to a lean board, slightly moulded, and sometimes bearing a badly-drawn billet ornament as often as not merely scratched on the timber. The consoles show rather a wildness of conception only compensated for in the vigour of their execution. In the modelled plaster panels, however, was made a decided hit, and though the modelling may be a little crude, yet the subjects are very interesting and the general effect very good indeed. Bishop Lloyd’s

Palace and God's Providence House at Chester are very good specimens of this class of work. Modelled plaster was also treated as free ornament, an unusually elaborate specimen of this being found in a cottage at Wyvenhoe, near Colchester, the upper walls of which are entirely covered with scroll work. Italian foliated scroll work was introduced by foreign artists in the first half of the seventeenth century, and no doubt gave the first suggestion of filling in the whole of the triangular part of the gable with a bold design, much favoured by present day English architects.

The "Bear and Billet" inn at Chester shows a characteristically English street front, and one which, with its quaint signboard, has doubtless proved a Godsend to many an artist of the "potboiling" type. The strong horizontal lines and series of panels make a very quaint composition, and the windows extending the whole width of the front on each floor are extremely picturesque. One can have too much light in a room, however, and possibly those long windows were not an unmixed blessing. In consequence of the window-tax many of the kind were wholly or partially closed up. The upper room here was probably the music or dancing gallery.

There is a peculiar development of half-timber in Chester which is said to be unique, namely, the Rows. These are long covered arcades formed by the front portion of the first flat being taken out the whole length of the street and substituted by a flagged pavement, reached from the street level by flights of stone steps at intervals, and with a second row of shops behind. The shops on the street were probably at one time merely cellars, to which purpose some are still appropriated. There are several theories of the origin of the Rows. One is that they were constructed for defence. Aimed from the Rows by the citizens—stones, arrows, and in later times bullets, would be delivered with telling effect upon the heads of the assailants below. In time of peace the stalls, or front-portion of the row between the pillars that support the superstructure, would serve admirably as stations from which the citizens might view the civic processions for which Chester was famous. Let no one, however, be now afraid of promenading the streets of Chester. The excited inhabitant is supplanted on the balcony by the young ladies of the town. The Rows are in fact now the fashionable promenade of the town, and when

the four rows of shops are lit up in the evening, the scene can only be likened to a huge bazaar. Chester is what one might call the home of timber work, and even now a whole street close to the cathedral is being put up on truthful and traditional lines, though probably as much on sentimental as utilitarian grounds. Cheshire and Lancashire are rich in examples of good Elizabethan work, from which Speke Hall, near Liverpool, may be singled out for mention.

While these examples deserve very careful study, there is yet another important class of half-timber work which is of special interest in its direct application to everyday work, namely, those examples which bear but little detail by which to class them as Gothic or Renaissance, but which may be said to be the true representatives of half-timber, which is fundamentally a phase of carpentry. The art of the carpenter is now-a-days considered as something to be covered up and carefully hidden from sight—and, perhaps, in some cases it is better so. Still, an honest piece of carpentry has a vigorous beauty of its own if its lines are skillfully worked out, and needs no embellishment of carving or veneer, which too often destroy the very effect they are intended to emphasize. There are, fortunately, numerous examples of carpentry fronts pure and simple, amongst which may be mentioned Trewern Hall, Montgomeryshire, The Oaks, West Bromwich, the Old Hall, Gainsborough, &c., and a study of one or two of these typical examples may prove interesting and instructive, teaching one what to retain and what to avoid, for these examples have their bad as well as good points.

(To be continued.)

THE French Estimates provide this year for £6900 being spent on the restoration of the exteriors of the Palace of Versailles and the Trianon and £4000 on the fountains in the park.

Two hundred pounds damages have been awarded to a Battersea carpenter, who sued Messrs. Treasure and Sons, builders, of Holloway. While working at the new Board school at The Grove, Wandsworth, the plaintiff fell 42ft. from the scaffold into some water, owing to a plank giving way.

THE PLANNING OF HIGH SCHOOLS FOR GIRLS.*

By J. OSBORNE SMITH, F.R.I.B.A.

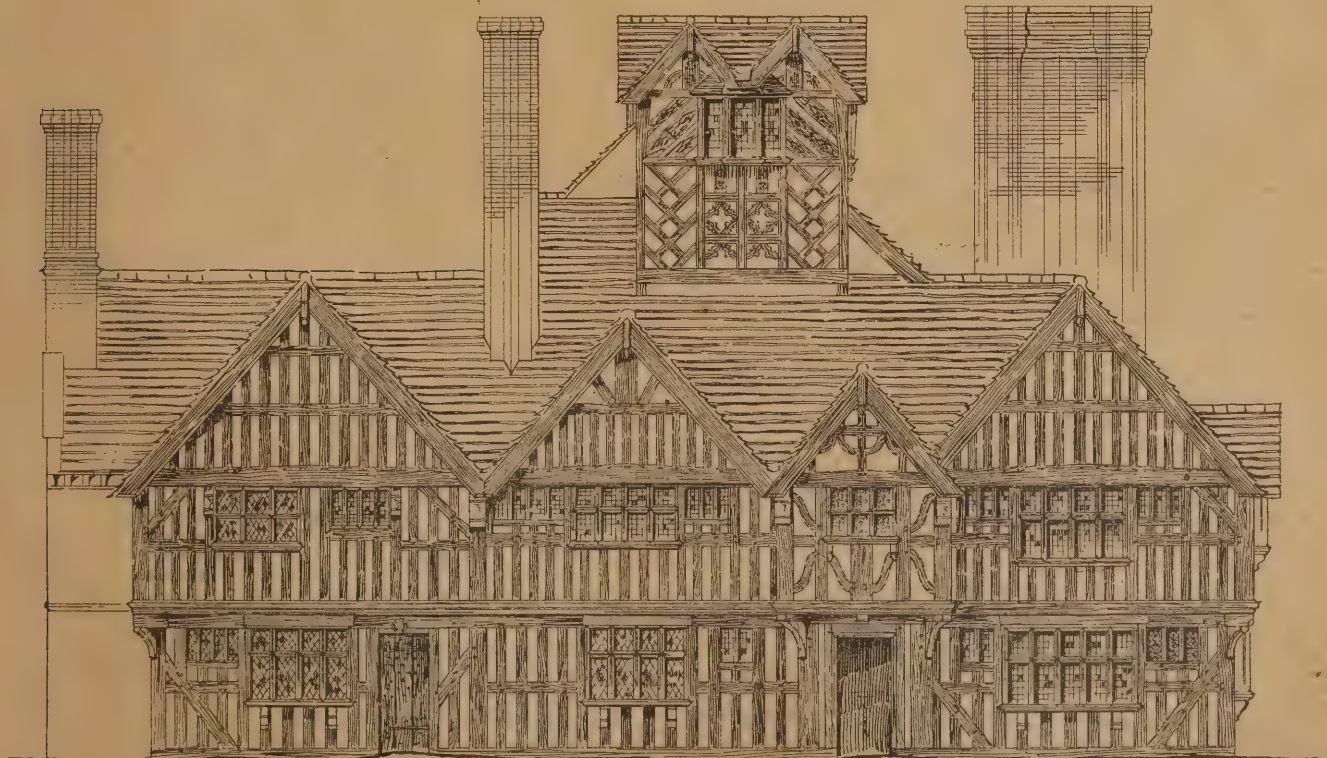
(Continued from page 396.)

LAVATORY FITTINGS.—The water should be laid on to the basins and water-closets direct from the high-pressure mains, or from cisterns placed at a considerable height above the lavatories. The diameter of the pipes will depend, of course, upon the size of the lavatory ranges or the number of closets to be served, as well as their position below the main cistern. A very important point to bear in mind is that the closets and lavatory basins are often all in use during the same time, therefore all service pipes must be exceptionally large. There are so many disadvantages connected with the small flushing cisterns which water companies insist upon, that other methods of flushing the closets are arranged when water is supplied through a meter, such as lead-lined trough and spindle valves over water-closets or continuous cistern. The stoneware trough and automatic flushing-tank arrangement for water-closets partially avoids these difficulties; but a separate water-closet apparatus and flushing arrangement has many advantages over the trough method. Ranges of water-closets in or adjoining a building should be invariably separated from the corridor or stairs, which gives access to them, by a well-ventilated lobby or passage, in which may be placed the lavatory basins. These lavatories should be roomy enough to allow pupils to pass freely to and from the water-closets while others are using the basins. The height of the lavatories and water-closets need not exceed 8ft. 6in. or 9ft.; a separate window for each water-closet, inlet ventilators near the floor of the lobbies or lavatories, and outlet flues from the ceiling level up to above the roof are desirable.

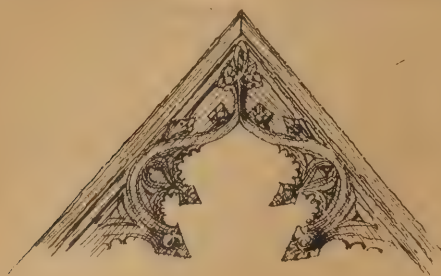
WALLS.

Walls must, of course, be built of sufficient substance to resist heat, cold, and moisture. Hollow walls in very exposed situations are useful, in spite of their disadvantages; but solid walls of good materials are better for ordinary positions. All openings in walls, flues, chases, &c., should be made accessible

* This article, the first part of which appeared in our last issue, was read at a paper before the Architectural Association on December 3, 1897.



THE OAKS, WEST BROMWICH. DRAWN BY W. A. MELLON.



OCKWELLS, BERKSHIRE.



BAYLEY LANE, COVENTRY.



COVENTRY (TRANSITIONAL)

ENGLISH BARGEBOARDS. SKETCHED BY W. A. MELLON.

for cleaning. The greatest care should be taken, and thoroughly effective means should be adopted to prevent moisture penetrating the walls from above downwards, or from the ground upwards. Solid damp-proof courses, formed of asphalt, slate, cement, &c., ought alone to be used, being much more effective than the various glazed perforated substitutes.

ROOFS.

Roofs, if of the usual wood rafters, and slate, tiles, or lead coverings, should be close boarded, and have some non-conducting material under the outer coverings.

FLOORS.

Floors of class-rooms should, if possible, be impermeable, and covered with wood. Where wood joists are used special care should be taken to ensure rigidity, and provide effective means of checking the passage of sound and air through the floors. Floors of all lavatories and science rooms should be solid, with hard, non-absorbent coverings. The use of porous breeze concrete for such floors is not to be commended. Wood floor coverings should be polished, and have skirting fillets of sufficient width to keep the desks from injuring the wall surfaces.

VENTILATION AND WARMING.

The cost of forming and maintaining a system of mechanical ventilation, and the desire for an open fire for the sake of cheerfulness and prompt control, account for the fact that in most of the schools of the kind under consideration the open fireplace has been utilised. If a school building be designed to allow currents of air to sweep entirely across it during the pupils' absence, and each class-room be provided with two 9in. by 9in. or 14in. by 9in. shafts or flues from the floor to above the roof, with inlets to each at floor and ceiling levels, in addition to a large warm-air grate and suitable windows, it is found in practice that reasonably adequate means for warming and ventilating are thus economically obtained. Their effective use depends greatly, of course, upon the mistresses in charge of the rooms, but it is an exception to find a head-mistress who is not keenly alive to the value of the means afforded and familiar with the use of them. Vertical inlet tubes, deep sill fillets to windows and the various valve ventilations, are all useful as aids, when kept clean; but unless air is warmed before it enters a school, the inlets will remain closed during six months of the year when fires are in use. This fact accounts for the popularity of the

VARIOUS VENTILATING GRATES,

some of which can be taken to pieces periodically for cleaning, and work best when doors, windows, and ventilators are closed. The assembly-room, corridors, cloak-rooms, lavatories, laboratory, entrance lobbies, and staircases can be more conveniently warmed by hot-water pipes. It should be possible to raise the temperature in the corridors, cloak-rooms, lavatories, &c., to about 50deg. or 55deg.

during cold weather, for the purpose of preserving a fairly equable temperature inside the building and protecting the sanitary arrangements and water devices from disorganisation by frost. The small pipe medium pressure apparatus is found very useful for warming schools, on account of the small quantity of liquid used, enabling heat to be produced in less time than with larger pipes. These small pipes, moreover, can be used under skylights and in other positions where the larger pipes could not conveniently be placed. The practice of arranging hot-water pipes in channels below the floor of the spaces to be warmed, with open gratings above them, is unnecessary, wasteful, and dangerous, because of the difficulty of keeping the pipes and channels free from foul matter from boots and floors. Inclosing hot-water coils in ornamental casings is objectionable for the same reason. The last word upon

WARMING AND VENTILATING CROWDED ROOMS

has not yet been said; the present methods are not perfect. The air in our streets is polluted in a manner which it is to be hoped will be regarded with amazement in the near future, when thick clouds of unconsumed fuel, foul exhalations from so-called sewer ventilators at the level of the roadway, and the fibrous filth from wood pavements, are no longer allowed to adulterate the precious air, which ought to enter our houses unsullied by such dangerous and unpleasant companions. At present the windows and doors are often closed, and the air refused admittance, because it cannot enter alone. Air in buildings will always require warming in winter, but it need not require washing and filtering as it does now. The problems met with in endowed schools for girls are very similar to those in high schools, and

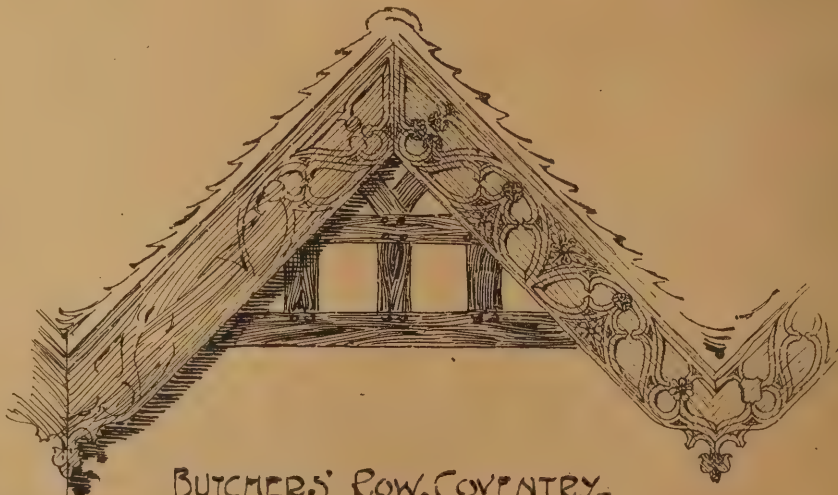
are solved in much the same way. Endowed school governors are too often not overburdened with funds, the endowments having been usually severely taxed to provide new buildings for the education of the boys before it was thought desirable to make similar provision for girls. In conclusion, I venture to hope the movement for giving increased facilities for secondary education to girls will continue, and that those of us who form part of the lesser half of the population will assist with all our energies in this desirable work, even if it should lead to provision being made for training and encouraging women to study Architecture in the coming new home of this Association.—Mr. Banister F. Fletcher, proposing a vote of thanks to the lecturer, said it was one of the most practical papers they had had for some time. They had been so inundated with technical education, and they had been told so much about how to lay bricks and so on, that it was quite a treat to get a paper on planning, which was of course the basis of architectural design. Mr. Osborne Smith had described to them a class-room in which the desks were five deep. He would like to know how far he was influenced by the rules of the Education Department? He believed there was a rule of the Department to the effect that a class-room should not be more than three deep. If they had a class-room with the desks five deep in front of the teacher it was considered by the Department—and rightly so—that the teacher's voice was necessarily strained. As to

THE QUESTION OF LIGHTING.

of course that at once brought them to a rather important point, as to the type of window they should adopt in dealing with schools for secondary education. They had either got a mullion type, which was in use at such buildings as the Universities of Oxford and Cambridge, or they had the double hung sash treatment, which was in use in the London board schools. He would like to know whether Mr. Smith had any special preference for one or the other, and also whether he could give them any relative cost of the two for giving effective light to schools? It seemed to him that in building secondary education schools the mullion window was more academic, and, providing it gave the necessary light, seemed to be the most preferable. As to the use of

VENTILATING GRATES

in schools, he was in the office of a London architect for some time, where they had one, which he believed was put in by the makers for nothing, but whenever it was not used and was left open, the place was simply covered in soot. Of course they must have grates capable of being thoroughly cleansed if they wanted ventilating grates at all. As to the corridors, it seemed to him there was at present a tendency to make them more attractive. In a 7ft. corridor they could not do much, but if 10ft. they could make it a picture gallery. That would be putting a certain amount of



BUTCHERS' ROW, COVENTRY.

ENGLISH BARGEBOARDS. SKETCHED BY W. A. MELLON.

character in it, which otherwise it would not possess.—Mr. Seth Smith, in seconding the proposition, said in view of projected legislation on the subject of secondary education, they might expect that some of the suggestions put forward by the lecturer would be considerably modified. The answer to Mr. Fletcher's question would be that the Education Department had nothing to do with high schools, but only with

ELEMENTARY SCHOOLS,

whilst the Charity Commissioners dealt with endowed schools. Therefore, the rules of the Department, as to the cubical contents and floor areas, would not apply to high school building, otherwise they would not have Mr. Osborne Smith advocating class-rooms of 12ft. He most thoroughly endorsed Mr. Smith's remarks with regard to the difficulties in the way of adapting old buildings, and, when invited to advise people, one almost always recommended that the buildings should be cleared away, even on the score of cost, because, as they all knew, alterations of this kind involved not only a sacrifice of planning, convenience, and health in every way, but the cost was almost prohibitive. He had had to do with designing several buildings of this kind, and one point he had always felt most strongly about was that he should get the maximum amount of sunlight without inconvenience to the pupils in the class-room by flooding it. He noticed that Mr. Osborne Smith put the desks rather closer than the Education Department allowed for their schools. He did not know that there was any objection to it in a room that was well ventilated, and no doubt it meant a

GREAT SAVING OF EXPENSE,

a weighty consideration in the building of high schools. With regard to the position of fireplaces, he always thought it best to place them between the door and the teacher's desk, otherwise there must be a draught passing between the door and the teacher. There was another objection; when flues went up almost in the external wall heat was lost. He daresay Mr. Smith would tell them there would be less heat by having the fireplace too near the door, but he (the speaker) thought it was important to have it in that position in order to check the draught. He noticed Mr. Smith advocated the use of single desks. Undoubtedly they were best for supervision, but they were the most expensive. He would like to hear Mr. Smith's opinion as to the finishing of the walls internally. He would also like to know if in any of the schools he had erected he had been asked to provide a museum, as he found in many cases it was an acquisition. After referring to the necessity, in planning high schools, of placing the class-rooms in a position to avoid the noise of the street, the speaker observed that he was sorry the Association had refused admission to ladies at present. He was sorry no ladies were there, because the mistresses of these schools would have been able to criticise the plans from experience.—Mr. Howley Sim said the plans shown were chiefly divided between

SCHOOLS WITH CORRIDORS

and those without. It did not appear to be clear how the corridors were lighted. Then with regard to the ventilation of the class-rooms as shown, if they opened the top window and the fanlight above the door it seemed to him there would be a complete draught. With regard to warmth, if dependent entirely upon an open grate, it would require to be lighted some considerable time before the room was used in order to reach a proper temperature. Was it not desirable to have some hot-water pipes? He would also like to ask for information about the dimensions of the assembly hall for three or four hundred children.—Mr. L. Jacob, commenting upon the planning of a class-room, said he did not think five rows of desks were excessive. He objected to the putting of fireplaces between the window and the door, because the pupils would have to walk considerably more in front of them than if they put them between the teacher and window. He certainly thought the arrangement of the plan of

having the class-rooms around the assembly room was rather the best.—Mr. Langton Cole continued the debate. In the event of the gallery being used for the purpose of viewing any function, were any means of exit, he asked, provided

IN CASE OF PANIC,

or were there any special means of exit from the assembly-room.—The President said it was very certain that the question of regulations for the building up of secondary

lavatories connected with the main building, although they might be separated by a lobby. It would be said that there was not the same objections in a school of this kind as in the elementary schools, but he thought the same principles applied. Attention had been called to the aspect of the rooms, and he thought it was very important to get a little sunshine into every room if it were possible. With regard to the position of the fireplace, his experience had been that the right-hand side of the teacher in the angle was the best



Bishops Lloyds House
Water Gate
Chester
—J. Hutchings

schools were being taken up seriously. The question of the assembly hall was always a difficult one, especially in a school of the two sexes, and in that case he did not think it possible to arrange a school satisfactorily unless it was on the corridor principle. Where only one sex was to be provided for, he did not think it was a satisfactory arrangement for the class-rooms to be entered directly out of the hall. He supposed the single desk took more room than the dual desks, and, therefore, it affected the area of the room. He was surprised to see Mr. Smith's plan showing the

place. The worst feature of it was, however, that it brought the chimney up in the most unfortunate place in the elevation.—Mr. Osborne Smith, responding to the vote of thanks, said the rule was not to make any special provision for a museum in the corridors. He generally distempered the walls and painted the bottom part with ordinary plaster, sometimes, but not frequently, using a dado. As a rule they did not build music rooms, for the lessons were generally given when other classes were not being held, and a class-room became the music room.

THE GOVERNMENT OFFICES SCHEME.

SECOND REPORT.

THE Committee appointed to consider the question of obtaining sites for the proposed new Government offices have issued their second report. In this they state that "We have thought it well to examine representatives of the Council of the Royal Institute of British Architects, and other qualified members of the Profession, but whilst we have availed ourselves of some of their suggestions, we have felt unable, owing partly to the enormous cost involved, and partly to other considerations, to recommend their schemes generally for acceptance. . . . We are of opinion that the new public offices on the Parliament Street or Great George Street site should be erected mainly

ON THE LINES OF PLAN No. 1

in the appendix to the report of last year, with a frontage in a line with the frontage of the Home Office, and parallel to the east side of Parliament Street; but we recommend that the south-eastern corner of the new building should be square, and not rounded. The land between this new frontage and the present west side of Parliament Street would, if this plan were adopted, become part of the public street; and, in our opinion, there is no need to make special provision for separating the traffic at this point. We recommend the appropriation of this site for the Board of Trade, the Education Department, and the extension of the Local Government Board. As regards the Whitehall site, having considered the alternative schemes for the War Office which have been placed before us this year, we adhere to the recommendation made in our interim report, being satisfied that a building satisfactory in appearance and accommodation can be erected on that site within its present boundary lines; and we are of opinion that the details as to the arrangement of buildings, courts, &c., should be entrusted to the discretion of the Office of Works, in conjunction with the architect selected. We think that a subway should ultimately be formed under the street between the War Office and the Admiralty. Schemes have been submitted to the Committee by the Royal Institute of British Architects and by Colonel Edis for a widening of Charing Cross and of the northern part of Whitehall; but we cannot recommend that the taxpayers should be asked to bear the cost of this metropolitan improvement, which, if undertaken, comes more properly within the duty of the local authorities. We, however, strongly advise that the Mall should be opened into Charing Cross on the north side of Messrs. Drummond's Bank. We think that no decision should be arrived at as to

BUILDING ON THE TRIANGULAR SITE

in Spring Gardens until the houses standing there have been removed, and the ultimate requirements of the Admiralty considered. We recommend that Nos. 11 and 12, Downing Street, occupied respectively as a residence for the Chancellor of the Exchequer, and as an office for the Patronage Secretary to the Treasury, should be removed, as unworthy of the site they occupy; but we are of opinion that the principal block of No. 10, the historic residence of the First Lord of the Treasury, for reasons of practical necessity and on account of its associations, should be retained, the Downing Street front being masked by erecting a new building with a good architectural façade, and the Park front being cased in stone, so as to harmonise with the north and west fronts of the old Treasury Buildings, and the garden ground being inclosed with a screen or railing of handsome design. We do not recommend any further building on this site. We are of opinion that whatever other office accommodation is required, which cannot be conveniently found in existing Government buildings, should be provided for by an extension of the Great George Street site in the direction of Delahay Street and St. James's Park."

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 15th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

The new Town Hall Committee of the Cardiff Corporation have considered the competitive plans for municipal buildings and law courts, to be erected on Cathay's Park at the cost of £200,000. Acting on the advice of Mr. A. Waterhouse, R.A., the committee awarded the first prize of £500 to the plans sent by H. V. Lanchester, J. S. Stewart, and E. A. Richards, Bedford Row, London; the second prize of £300 to J. S. Gibson and S. B. Russell, Gray's Inn Road; and the third prize of £200 to Alfred Cox and A. H. Cooksley, Adam Street, Adelphi. Fifty-six sets were submitted. The site will cost £160,000.

THE surprise of the evening at the annual distribution of prizes to students, at the Royal Academy, which took place on Friday night last, was that the Gold Medal for historical painting, carrying with it a travelling studentship of £200, was not awarded. The subject was "Cleopatra Clandestinely Introduced into the Presence of Caesar," and, as the President said, it was a difficult one. In no fewer than seven other cases the prizes offered were not awarded, and in four there was no competition. Those which were won were as follows: Turner Gold Medal and Scholarship (£50), for landscape painting, Alfred Priest; Creswick Prize (£30), C. M. Q. Orchardson; figure from the life (male students only), silver medals, H. D. Davidson and H. T. Holloway; head from the life, silver medals, A. E. Smith and E. L. Van Someren; draped figure (female students only), silver medal, Hilda Roe; cartoon of a draped figure, silver medal and prize (£25), Mary Towgood; design in monochrome for a figure picture, 2nd (£10), E. E. Ellis; design for the decoration of a portion of a public building, prize £40, Mary E. F. Brickdale; set of six drawings of a figure from the life (male students), 1st prize (£50) and silver medal, O. B. Morgan; 2nd (£25), E. E. Ellis; 3rd (£15), G. Murray; 4th (£10), M. Bernstein, who was disqualified owing to having received a superior prize in the same competition before; drawing of a head from life, silver medals, F. E. Colthurst and E. A. Mott; drawing of a statue or group, silver medal, Mabel Catherine Robinson; composition in sculpture, gold medal and travelling studentship (£200), Alfred Turner; model of a design, 1st prize (£30), E. W. Bayes; set of three models of a figure from the life (male students), 1st prize (£50), and silver medal, Alfred Turner; 2nd (£20), A. B. Pegram; model of a statue or group, 2nd silver medal, M. J. Brown; design in Architecture, gold medal and travelling studentship (£200), A. H. Christie; set of architectural drawings, 1st silver medal, A. M. Watson; set of architectural designs (upper school), prize (£25), G. J. J. Lacy; set of drawings of an architectural design (lower school), prize (£10), J. S. Lee; plan of a building, prize (£10), H. C. Hide; the Landseer Scholarships in painting and sculpture of £40 a year each, tenable for two years, have been awarded—in painting to E. L. Van Someren, in sculpture to Alfred Turner.

SIR E. POYNTEE'S address at the annual prize distribution at the Royal Academy, on Friday night, was almost exclusively devoted to a criticism of the students' work, and to advice to them. He expressed his great regret that it had been found advisable to withhold the gold medal for painting this year, for that was the most widely popular form of Art from the point of view of those who produced it and those who enjoyed it. As to the cause of their failure, no doubt the difficulty of the subject had something to do in accounting for the comparatively poor level of the productions sent in. At the same time he would encourage the student by saying that, having carefully looked at their paintings, he had discovered ample evidence of promise in them, and he was confident that some of those who had competed would achieve success, and probably take a high place in the Art of the country. He warned the students against vulgar realism in Art, and, while he praised technical skill, he would remind them that technical skill was not everything, and, however brilliant, was but a means to an end; that no mastery of technique could ever take the place of the imagination which every true artist must possess. The drawings from a draped figure were the best he had ever seen done in the schools, and he was the more gratified on this account because, while it was comparatively easy to paint drapery, the proper arrangement of drapery was one of the most difficult departments of Art. The President also greatly praised the work done in sculpture; but in the architectural competitions he detected a conspicuous display of that picturesque irregularity which seemed to be the fashion of the day. The address came to an end with the announcement that before long, in those rooms, students and others would have an opportunity of surveying the whole life-work of the late President, Sir J. Millais.

THE fourth of the eight works which have been promised by different donors for the mural decoration of the Royal Exchange has advanced a further stage. The subject for the latest panel is an historical episode, "William the Conqueror granting a charter to the citizens of London," and is by Mr. Seymour Lucas. It is the gift of the Mercers' Company, and the canvas has been successfully stretched on to its frame in the Exchange, preparatory to being placed solidly in its niche in the north-west corner. The picture is not an oil painting in the ordinary acceptance of the word, but a "spirit fresco."

No. 14, ST. JAMES'S SQUARE—the premises of the London Library—which has just been entirely demolished preparatory to re-building, was at one time the town residence of Earl Amherst, when Commander-in-Chief of the British army, and was originally known as Beauchamp House. Since 1840 it has been devoted to its present purposes, while it is also the home of the Institute of Actuaries and other learned bodies. On one side of this famous old mansion is the former residence of the Earl of Lichfield, Postmaster-General in Lord Melbourne's Cabinet, which was the scene of the Lichfield House Compact, whilst on the other is No. 15, once the property of the widow of Sir Philip Francis, by whom it was lent to the unfortunate Queen Caroline.

THE beautiful doorway to Rouen Cathedral, forming as it does part of perhaps the most picturesque frontal in existence, is in so bad a state of repair that the Municipal Council has been forced to depart from its principle not to assist ecclesiastical restorations, and has voted £4000 towards the work, provided it is undertaken at once, and continued without intermission.

"THE Moon of Columbia" is not a natural phenomenon, but an ingenious system of lighting large halls contrived by Professor Halleock. At present, this luminary shines only in the great library of the Columbia University, in New York, where it has proved a great boon to eyes wearied by the glare of incandescent lamps. It consists of a huge ball of wood, 6ft. in diameter, and painted a dead white. Upon

this, when darkness sets in, are projected the rays from eight powerful arc lights carefully concealed in the corners of the four chambers, so that neither the carbons nor the direct beams are visible to the readers. This diffuses a light quite unfatiguing to the eyes, and yet intense enough to enable work to be carried on in any part of the library. To Professor Halleock is due the introduction of this novel contrivance, which is applicable, of course, to almost every kind of public building.

THE committee entrusted with the restoration of Peterborough Cathedral have issued a financial statement for the past twelve months, which includes a balance of £1575 brought into the accounts from 1895. The total available income for the twelve months was £3632, of which amount £231 had been received from visitors to the Cathedral. The expenditure on works during the twelve months, including architect's fees, &c., was £3545, leaving a balance of £87. A further sum of £7500 is still required by the committee in order to complete the works advised by the architect, for the further restoration of the great west front, the north transept, and the eastern chapel.

PROBABLY the recent insistence of the Bavarian Minister of Fine Arts, that the well-known artist Herr von Uhde should alter the features in a picture of Christ, bought by the State, owing to its lack of dignity, may have suggested the idea of an exhibition now being held at Cologne wherein the leading artists have been invited to give their individual ideas of Our Lord's personality. To many it might appear irreverent to start a competition on such a subject, although one may wish for some recognised, if conventional, type of the Divine countenance. However, the Cologne experiment has led to no satisfactory result. A score of eminent painters sent in works, but the critics have come to the conclusion that not one of them deserves entire commendation, whilst the majority are declared to be impossible.

THE Parliamentary Committee of the London County Council report that they have prepared a General Powers Bill for promotion in the next session of Parliament, in which they have included the following matters respecting which references have from time to time been made to them by the Council: Continuation of Roehampton Street, Westminster; widening of York Road (Battersea and Wandsworth); widening of Albert Embankment (Vauxhall); reconstruction of Rosemary branch bridge over the Regent's Canal; acquisition of a site for the purposes of a fire brigade station at Streatham; acquisition of land adjoining Ravenscourt Park and at Putney Bridge Road for open spaces, and provision for contributions by local authorities to such acquisitions; removal of obstruction in streets; extension of time for the purposes of the Vauxhall Bridge Act, 1895, and the Tower Bridge Southern Approach Act, 1895; future maintenance, cleansing, and lighting of the thoroughfares known as Savoy Hill and Savoy Place; exchange of land at South Mill Fields, Hackney; expenditure in connection with the provision and erection of works of art in the county of London; the preservation of buildings and places of historic or architectural interest; collection of money in parks and open spaces; and the application of the provisions of the London County Council Subways Act, 1893, in certain cases.

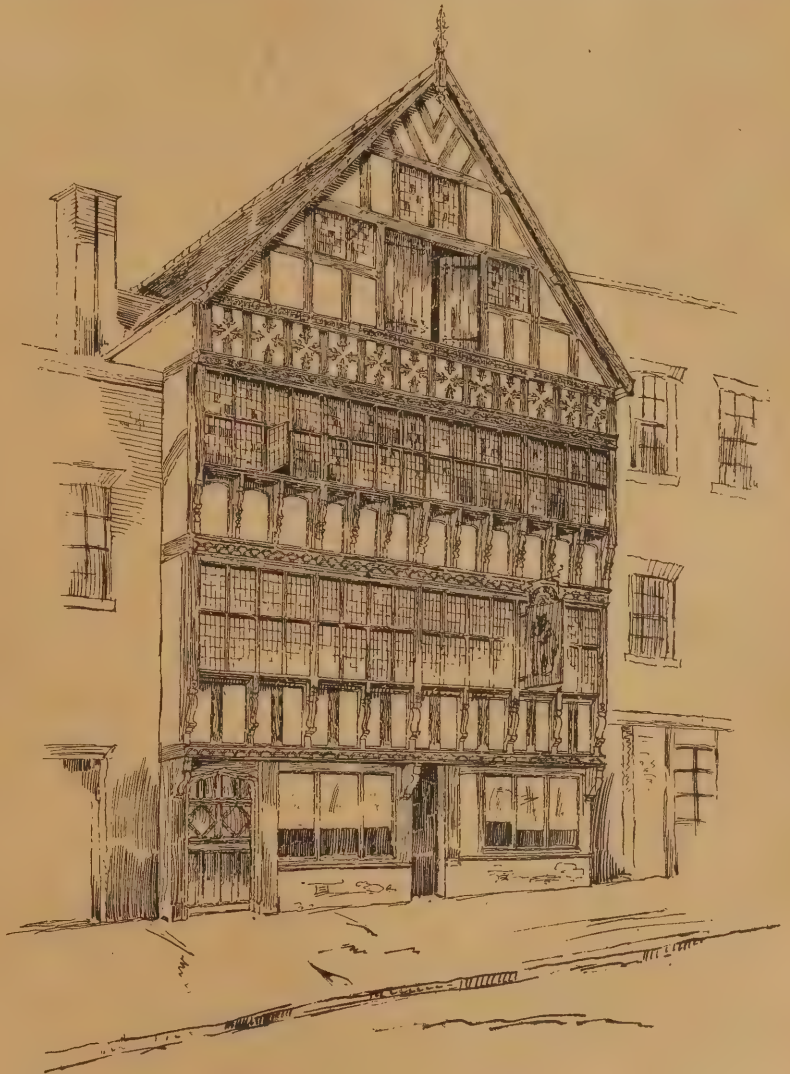
THE method of improving London by private syndicate is to have a second trial in Westminster. For some years a syndicate had Parliamentary powers to widen Parliament Street, until at last the Government took over the business. Now a syndicate has started business on the other side of Westminster Abbey, and a Bill is proposed for a large improvement between Old Palace Yard and Lambeth Bridge. The area is a kind of remnant of the past, and much requires to be improved, but the County Council has not seen its way to spend the large sum of money which would be required

to buy out the wharf properties and generally develop the scheme. If it were developed, it would pay a handsome return; but whether Parliament will entrust such powers to any speculative hands is entirely another matter. Very shortly, it may be noted, the Council will have to sweep away that ugly and ill-constructed erection called Lambeth Bridge. It was, we believe, a speculative piece of work, and was never a good one. The reconstruction, which will follow after the building of the new bridge at Vauxhall, will involve a great change of level in the road along the river; and if the area west of Victoria Tower is to be "improved," the two operations should certainly be carried out together.

SIR J. WOLFE BARRY, desiring to have some artistic record of his great Tower Bridge undertaking, has commissioned Mr. Wyllie to paint it in oils and Mr. Arthur Severn to draw

THE ninth annual congress of Archaeological Societies in union with the Society of Antiquaries has just been held at Burlington House, London. Resolutions were adopted for forming a catalogue of effigies of all dates in parish churches, and for compiling models for catalogues for museums and for indices of transactions of societies. It was announced that preparations were now made for obtaining, through the various societies, catalogues of family and historical portraits on the forms devised at the request of the congress by Mr. Lionel Cust, the director of the National Portrait Gallery. The formation of a National Photographic Association was also announced. This will, it is hoped, assist the work inaugurated by the congress some years back.

At Windisch, the old Roman colony of Vin-donissa, in the Canton of Argovie, excavations recently carried out under the auspices of the



BEAR AND BILLET INN, CHESTER. DRAWN BY W. A. MELLON.

it in water-colours. He has been happy in his choice; for whilst one can delineate it with all the bustle of the river traffic, the other will endow it with all the dignity of a fine sky and luminous atmosphere.

THE question of the further widening of Fleet Street came up at a recent meeting of the parishioners of St. Bride, held in the vestry of the church. Mr. Lile (a member of the Court of Common Council) said that in such an important improvement much time was needed in order that legal matters might be set right, but he thought that he could safely say that the work would be taken in hand very shortly. The widening of Fleet Street would surely come, and the tenants would, he had no doubt, be dealt with fairly.

Swiss Archaeological Society have yielded important results. Large Roman villas and an amphitheatre have been disinterred, and, besides a large quantity of coins, pottery, bronze, and ironware, some large silver vessels have been discovered which are said to only have their equals in the famous treasure-trove of Hildesheim, in Germany, brought to light in 1868.

THE recent fire in Cripplegate was the subject of important consideration at the meeting of the City Commissioners of Sewers last week. Mr. F. McCarthy, one of the Cripplegate representatives, moved that it be referred to the Finance and Improvement Committee to consider and report as to the desirability of taking steps to effect improvements in the

district affected by the fire. For the last thirty-two years, he said, rebuilding in the Ward of Cripplegate Without had been going on, new buildings had occupied the exact sites of the old, and there had been, to put it plainly, "jerry-building" of the worst order. —Mr. Stapley, seconding the motion, said the area of the fire had always been regarded as among the most dangerous in all London. The widening of streets, the severance of large blocks now difficult of access by the fire brigade, and the provision of unbroken party walls, were matters advocated by his constituents, and they well deserved the attention of the Commissioners. —Mr. A. A. Wood supported the resolution. He believed that the so-called model fireproof buildings were a mockery, a delusion, and a snare, and were conducive to much of the vast destruction that arose at fires. —Mr. Deputy Johnson considered that as the London County Council would have to be asked for a contribution towards the expense, it should be consulted as to the extent and scope of the improvement. —Eventually, after considerable discussion, Mr. McCarthy's resolution was carried, and power was given to the Committee to confer with the London County Council, if necessary.

WHEN the Duke of Devonshire was a boy he used to walk from Compton Place (his Eastbourne seat) to the Wish Tower all the way through corn fields. When the Marquis of Salisbury (who is at present staying there) looks forth from that pleasant house towards the sea, he may find it difficult to realise such a possession. The Wish Tower, which was one of the martello towers built round the wide semicircle of Pevensey Bay to guard against French invasion, stands now about the middle of the Eastbourne Parade. A town of nearly 40,000 inhabitants, with spacious, well-paved streets, fine shops, numerous places of worship, and a busy railway station, stretches out to east and west, and inland almost up to the gates of Compton Place. The change is due in the main to the wise ordering of the late Duke, who encouraged the growth of Eastbourne as much as possible, and was at the same time careful that it should grow up an agreeable town.

THE first exhibition of works by English painters, at the Jordan Art Gallery at Boston, U.S.A., is attracting its right share of attention, and will remain open until the end of the year. The Boston Journal observes that "the fine arts of England are indicative of the domestic nature of the artists and people alike, and it is a proven fact that the English really support their artists vastly better than any other nation." This is, of course, satisfactory, but there is better news still, which proclaims: "As for that, if an Englishman is in earnest he is successful in any branch of profession at home." Says the same optimistic critic, "seven-tenths of intelligent London visit the art displays"; but it is perhaps less immediately encouraging to our cousins across the Atlantic to hear of their own products that "America will arrive to greater perfection and appreciation, but it will not be for one hundred years yet." But to return to the exhibition, it is referred to as "the most progressive, far-reaching art educational event" (in the history of Boston), "that of exposing the world's masters at the Jordan Art Gallery." However, without being on the spot, we may say that the catalogue is full of the names of favourite members of our different art societies, some of whom are represented by a number of contributions, and let us hope they will be fully appreciated according to their merits.

OUR Parisian neighbours are working apace at the preparations for their exhibition to be opened in 1900, and judging from the advanced condition of the building they mean being ready in ample time. If so, it will be a sort of record, for it may be remembered that the last exhibition was terribly behind. The plans and drawings of the exhibition, which France is going to rear out of compliment to the moribund century, are on a scale of elegance and beauty undreamt of in our time. A bridge in memory of the late Czar and his proved affec-

tion for France will span the Seine in the very centre of the exhibition, and the buildings will flank the river front on both sides. Perhaps the most splendid of the many erections will be the Palace of Beaux Arts, now so fairly advanced that one may judge what the ensemble will be like. Already exhibitors and railway companies are waking up to the importance of this great enterprise, and applications for space are being sent in.

A CORRESPONDENT writes with reference to the use of double-glazed windows as follows: "The idea of two panels of glass in the same sash or casement is fallacious, for the following reasons, viz.: (1) The inner thickness—a loose sheet of glass—would have to be taken out every time the window needed cleaning. (2) Cold air is not effectually kept out in exposed positions unless the two lines of glass are 12in. apart, and thus enclose a wall of fixed air. (3) The air admitted at the joints of the sash would remain unaffected by the double glazing. (4) To a large extent the same result may be obtained by the use of thick plate glass and carefully contrived woodwork. But double glazing by double sashes, with a wall of air between, is a matter sometimes of great importance. A few years ago, when building a vicarage, the clergyman insisted on having his study made to face due north, where he could command a view of his parish when writing his sermons. I met the case by providing sliding shutters, glazed with large sheets of plate glass. The result was that the room had the same protection on the window side as could be derived from a solid wall."

THE work of the Jungfrau Railway is being pushed forward, in spite of the severe winter weather. In Lauterbrunnen, water power to the extent of 2400 horse power is now available, and half of this force is being utilised for the electric dynamos employed in the boring of the Eiger Glacier Tunnel. The mountain stream has been diverted from its course for a distance of ten kilometres, extending from the waterwheel house to the Scheidegg station and the Eiger glacier, and the open line between the Scheidegg and the glacier, with a tunnel of eighty metres, is prepared in its main details so that the electric railway over this tract can be opened in the first half of next June, and in time for the tourist season. The principal tunnel has been carried to a distance of 150 metres by hand-boring—mainly the work of Italian excavators—and the preliminaries for tracing out the great tunnel have been accomplished after some two years' labour. The rock is found to be excellently adapted for tunneling, and experiments on the Jungfrauoch have proved that it is reached at a depth of 25 to 30 metres under the snow, instead of 70 metres, as was at first apprehended.

LECTURING on "The Pre-Raphaelite Art of Sir J. E. Millais," at the London Institution, Mr. Whitworth Wallis said Millais was really the founder and leader of the Pre-Raphaelite School, whose object was to throw off convention and paint Nature faithfully. In choosing their name Millais, Holman Hunt, Rossetti, and their companions were guided by the conviction that previous to Raphael artists went solely to Nature for inspiration, whereas, after Raphael, they sought rather to paint fair pictures, and above all saleable canvases, a practice which had led to a decline of Art. Millais' early paintings were received with outrageous insults which the present generation could scarcely conceive, and which proved the astounding artistic ignorance of the time. He continued a Pre-Raphaelite till nearly 1860, in which year his "Black Brunswicker" showed a new Millais. During the last thirty years of his life, he was himself rather than the representative of a school. However great were his works in the later period, his reputation would rest mainly on the cycle of artistic triumphs in his Pre-Raphaelite days. The greatest painter of the century, his work quickened sympathy for which we could not be too grateful. To know him personally was a delight, as Mr. Wallis could testify. The lecture was

illustrated by many good lantern views of the dead artist's pictures, including "Waiting," a work practically unknown to the public. It represents a girl sitting on a stile between high walls, overhung by trees, and belongs to Mr. Edward Nettlefold. Drawing on knowledge obtained from Millais himself, the lecturer declared that the original of the man in the celebrated picture, "The Huguenot," was not a brother of Wilkie Collins, as some people supposed, but General Arthur Lempriere.

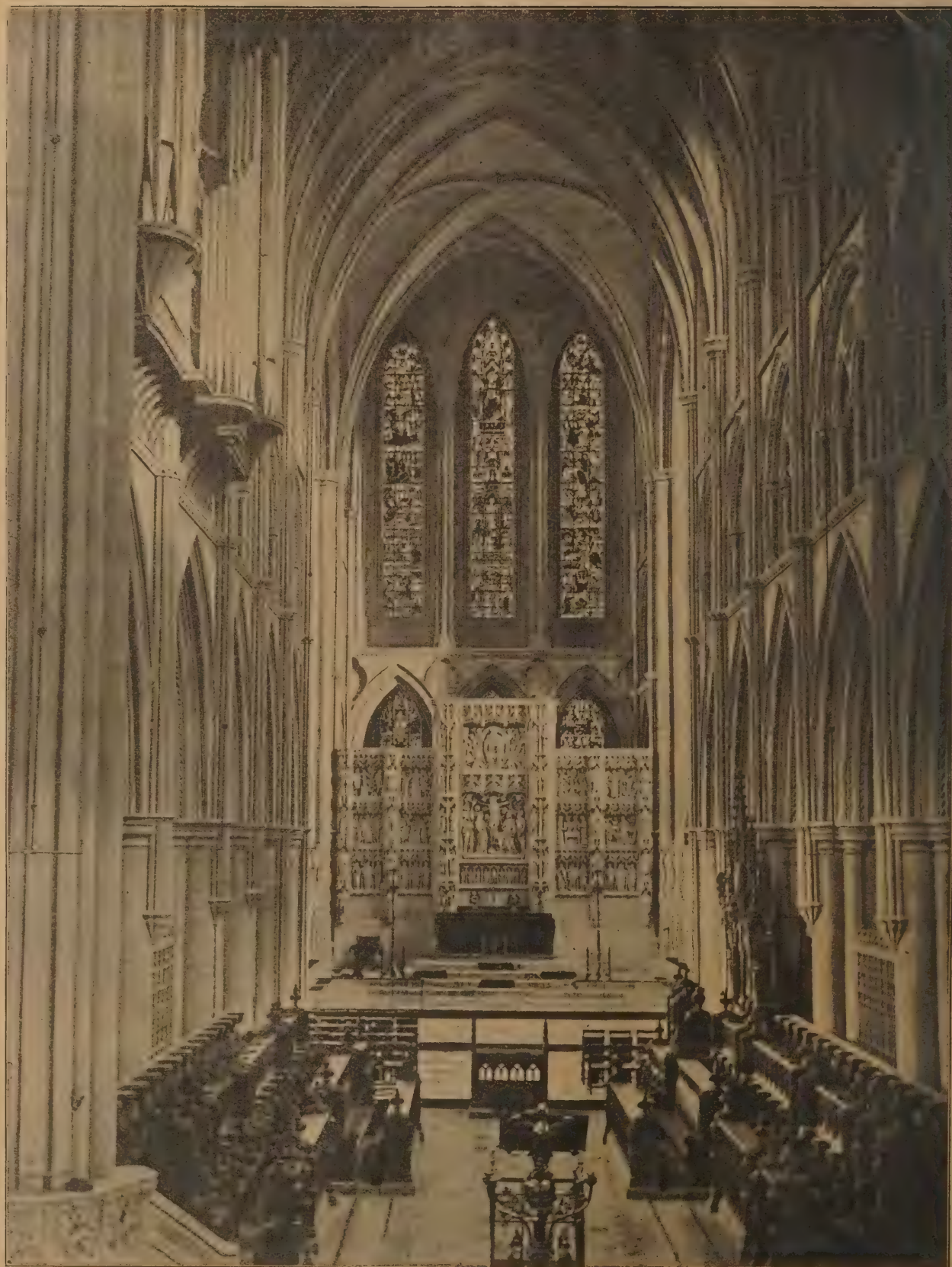
MR. HENRY CLARKE, a member of the London Corporation, having expressed a desire to contribute a painting of the value of 1000 guineas, commemorative of the Queen's visit to the City, for the Art gallery at Guildhall, the commission has been entrusted to Mr. A. C. Gow, R.A. The picture will represent the Jubilee service outside St. Paul's Cathedral, and includes the whole of the façade of the cathedral and the personages assembled there, including the cavalcade of princes. Her Majesty will, of course, be the central figure. The work, which will entail a great amount of labour, will not be completed until 1899, when it will be included in the exhibition of the Royal Academy.

DR. CONAN DOYLE'S newly-occupied house at Hindhead lies just below the crest on the east of the Portsmouth Road, and looks southward over a fair and varied scene of heather and bracken, rolling hill and wooded valley. But for the tennis-lawn and a little planting the property is left in its original wild state, the novelist's great endeavour having been to retain the special highland character of the country. Trophies of arms from London, and a great window emblazoned with Dr. Doyle's family history, adorn the entrance hall. Mindful of his several years' residence in Portsmouth, while practising medicine, Dr. Doyle chose both his architect and his builder from that town.

ON Monday next, December 20th, there will take place at the People's Palace, in the Mile End Road, in connection with the Jubilee exhibition of trades and inventions now being held there, a practical competition in wood-carving, for members of the trade and for apprentices. This competition consists in the carving of an acanthus leaf in pine wood, 12in. by 9in., while for amateurs, who can also compete, the subject is optional, though the size is the same. Silver and bronze medals and certificates will be awarded, and Messrs. T. J. Perrin and J. Ross, of the Institute of British Wood Carvers, will be the judges. Entries will be received up to Saturday next, the 18th inst., and wood will be provided at the Palace, but competitors furnish their own tools. This is a move decidedly in the right direction, and one we hope to see imitated by other polytechnic institutions.

BEAUFORT CASTLE, Ross-shire, the seat of Lord Lovat, stands in the centre of an extensive level park on the south bank of the Beaully river, about three miles from the town of the same name. Unlike most of our Highland castles, Beaufort has no claims to antiquity, for it is a magnificent modern castle, which was only finished fifteen years ago. The mansion house is built on the site of Castle Dounie, described by Sir Walter Scott in his "Tales of a Grandfather," and destroyed by Cumberland's troops after the battle of Culloden. This splendid mansion is in the Scottish baronial style, with heavy masonry—built of old red sand-stone from the Redburn quarry, about two miles from Beaully—with mullioned windows, bill-roofed turrets, and crow-stepped gables. It is 300ft. in length, with an average width of 80ft. The main building, which contains eighty-six different rooms, including the family chapel, consists of a western tower, a central block of private apartments, and an entrance tower, flanked by a central tower 100ft. high. It is altogether a picturesque and imposing pile, distinctly seen from either road or rail, and it is also a prominent and striking object in the beautiful and varied landscape by which it is on every side surrounded.

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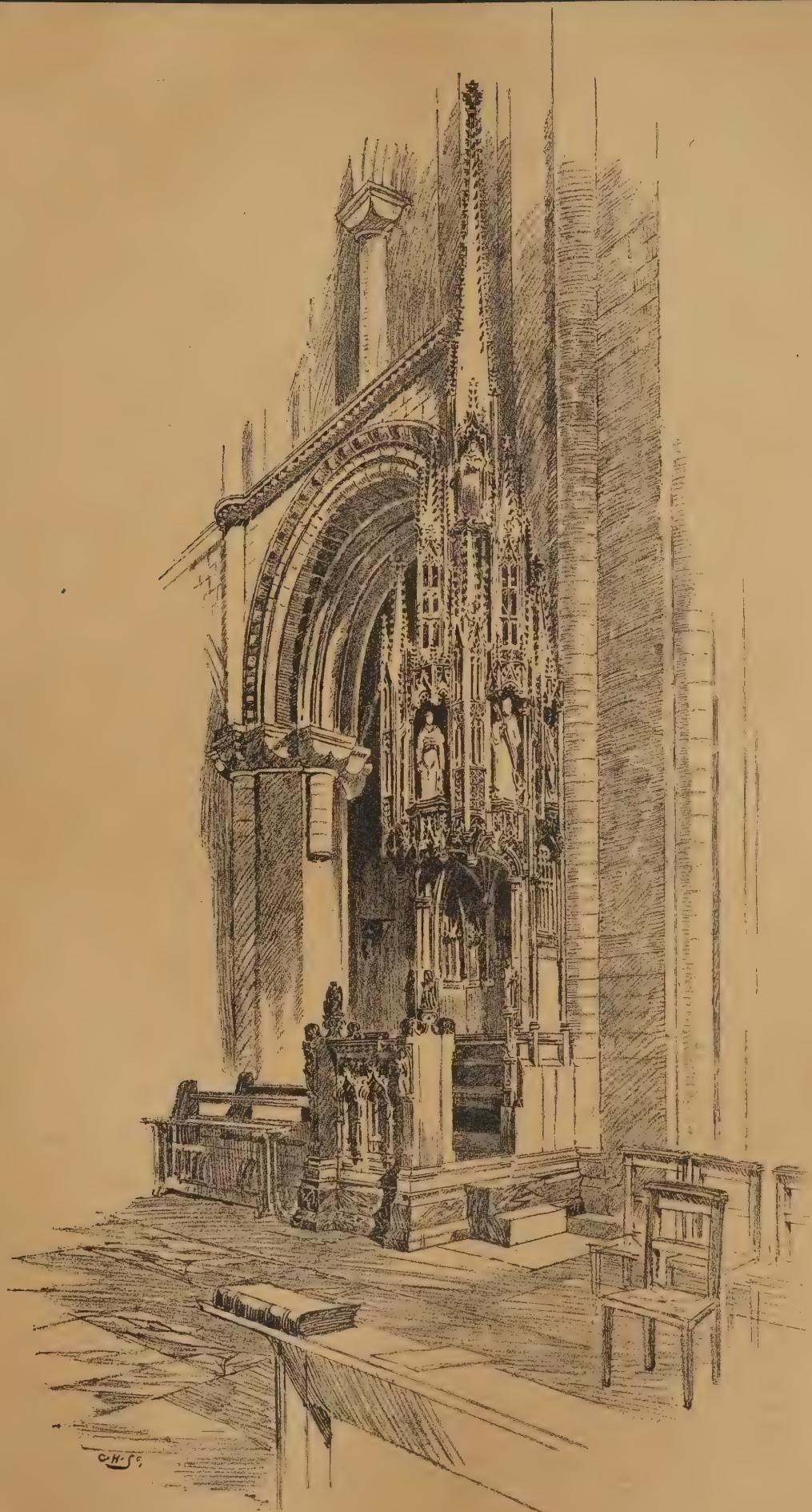


INTERIOR: TRURO CATHEDRAL. BY THE LATE JOHN L. PEARSON, R.A.



Yours truly
J. H. B. B. B.

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THE BISHOP'S THRONE, PETERBOROUGH. BY THE LATE JOHN L. PEARSON, R.A. DRAWN BY C. E. MALLOWS.

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BRICKWORK TESTS.

REPORT ON THIRD SERIES OF EXPERIMENTS.

AT a meeting of the R.I.B.A., on Monday evening, 13th inst., Mr. Wm. C. Street read the report on the third series of experiments conducted by the Science Standing Committee, to ascertain the average strength of various descriptions of brickwork. The Report stated that the experiments were completed last spring by the crushing at the West India Docks of twenty short lengths of brick walls, each about 6ft. high by 27in. long and 18in. thick. The Committee did not propose at present to give any fixed rules based upon the results or information gained by these experiments, as it was hoped that the Council of the Institute would sanction the preparation of a careful analysis of the facts contained in the three reports, and issue it in a suitable shape. If this were done it might be possible to generalise and formulate rules to govern the use of different kinds of brickwork as the supporting features of the structures erected under their superintendence. Meanwhile a few impressions could be given. The resistance of brickwork in lime mortar to crushing seemed to vary from one-sixth to one-eighth of the resistance offered by the brick itself, while in cement mortar it varied from one-half to one-fifth of that strength. So while cement mortar materially aided the weaker bricks in their combined strength, it could not materially affect the ultimate

POWER OF RESISTANCE IN BRICKWORK

made of a harder variety. The different specimens in lime mortar and those in cement mortar showed comparatively little difference in the respective rates at which the beds were crushed. The only question was how long the bricks would be able to resist the pressure if the load were increased at these rates. The average thickness of the bricks was 2 $\frac{3}{4}$ in., and the total thickness of the mortar beds 6in., while the compression of the lime mortar beds averaged 1in., and that of the cement mortar beds about $\frac{1}{2}$ in. This proved that the mortar generally was well crushed and disintegrated long before the final collapse of the several examples of brickwork. In dealing with the working load that might be calculated upon, care must be taken not to impose such a load as would materially damage the structure of the brickwork. At one-fifth of the crushing load the compression in lime mortar averaged $\frac{1}{5}$ in. in 6ft. of brickwork, and in cement mortar it averaged $\frac{1}{10}$ in. The great

DIFFERENCE BETWEEN DEAD AND LIVE LOADS

must not be lost sight of. Taking a safe load as one-fifth of the crushing load, it might be assumed from the results obtained that in lime mortar stock brickwork is equal to about 3 $\frac{1}{2}$ tons, Gault 6 tons, Fletton 6 tons, Leicester red 9 tons, and Staffordshire blue 23 tons per square foot. In Portland cement mortar, 1 to 4, Stocks would be equal to about 8 tons, Gaults 10 tons, Flettons 11 tons, Leicester red 17 tons, and Staffordshire blue 24 tons per square foot. Under the ordinary or average conditions of practice, the form of brickwork did not greatly affect the strength, the 18in. square piers having given approximately similar results per square foot to those obtained from specimens 27in. by 18in. With regard to the effect of age upon the different varieties of brickwork, results showed that, except in the case of blue bricks in cement, those built three months gave very similar results to those built five months. The difference in the case of the blue bricks was partly due to the fact that the bricks of which the specimens 27in. by 18in. were built were from a stronger lot than those of which the 18in. square were built, the samples from each delivery failing respectively at 779 and 701 tons per square foot.—Mr. Max Clarke then, by the aid of lantern photo-

graphs, described the crushing of each pier, and detailed the results.—Mr. F. Gordon Smith, as Chairman of the Committee, drew attention to the increased interest in this last series of tests owing to their having been made upon an actual wall as distinguished from ordinary brick piers. He expressed regret that the Committee did not have more money to continue the experiments.—Professor Unwin pointed out that this was really not the report of the General Committee, but of two members of the Committee. Far be it from him to grumble at that arrangement, but he was obliged to make

SOME CRITICISM.

of the way in which the reports were drawn up. As this was the last of the reports, he thought it was rather a pity that some matters to which attention had been called formerly had not been noticed. A year ago he objected to the tabulation of the second and third series of tests, and it would have been as well if, in the final report, some attention had been given to that objection. He thought the result, as put forward a year ago, completely confused the teaching of the results. Before the beginning of the work, when the arrangements were made, he, as one interested, drew attention to the want of supervision of quantities of lime and sand used in the mortar, and the way in which it was mixed. He was told by the architects, who were more interested in the work than himself, that they wanted experiments upon ordinary piers under ordinary supervision, and, therefore, that it was impossible to take notice of these points. The result was, they had piers built in the ordinary way. Even now it was almost impossible to tell exactly what was done at that time. The committee themselves were so dissatisfied that they had certain piers rebuilt and tested differently. The second series were built under much greater supervision, especially as to the way in which the mortar was mixed and used. He understood that at that time better sand was used than in the case of the first series. Mr. Clarke was good enough to write to him afterwards, and say that he was mistaken, but he did not seem quite certain, and invited him to come and examine the records. But there was no question, even from personal observation, that

THE MORTAR USED

in the second series was very much better than in the first. After three months the mortar employed in the first series crumbled in the hand in a way he had never seen before. Finally, in building the third series, in the shape of walls, they used quite a new quality of sand for making the mortar, and it was a much superior quality. He was greatly surprised that in the third report no reference was made to this fact. He attached great importance to the quality of the mortar used in these experiments, and believed that the results of the tests were largely obtained, in fact, almost exclusively, for the different qualities of sand used in building the piers. It was quite clear that they must not mix the results of the first and second series with those of the third. In conclusion, Professor Unwin drew attention to his tabulated statement of the tests as compared with that of the Committee.—A member also expressed the opinion that the report did not make nearly enough allowance in the ordinary work as to the stability and quality of the mortar, the quantity and the mode in which it was made. In such tests as this it was absolutely necessary that all the circumstances should be as equal as possible throughout.—The President said it seemed an extraordinary thing that mortar such as no architect who had any acquaintance with building would use had been employed in the tests. He observed, however, that they owed a debt of gratitude to the Committee, to whom he proposed a vote of thanks.—Mr. Max Clarke, responding, said it was an absolute fact that the first and second series were built of the same quality materials. With regard to the third, he explained that they had very good sand, but had not sufficient to finish the work, and so it was completed with another quality not quite so good.

FORTHCOMING ART METAL WORK EXHIBITION.

WHAT promises to be an interesting exhibition of Art metal work is to be held at the Royal Aquarium, London, in June next. The promoters of the movement have already secured the support of several well-known workers in Art to serve upon the Council. The Council recently met at the Aquarium to consider the conditions and other details connected with the competitions to be held, and for which gold, silver, and bronze medals, and certificates of merit, will be awarded. Competitors have plenty of choice of subjects in which to display their talent.

DESIGNS ARE INVITED

for no less than sixteen—namely, a street lamp-post for electric light; a wrought-iron open panel; a weathercock; repoussé coal-scuttle in copper; pair of wrought-iron carriage gates and piers, opening to be 10ft. wide; wrought-iron grille, 12in. high by 8in. wide, in solid oak door, with hinges, lock-plate and knocker; wrought-iron ornamental open screen with door in centre, dividing a hall in a residence; wrought-iron or brass casket with enamel panels (its object to contain the freedom of a city to be given to a general who has served Her Majesty successfully in India); metal end of a carriage-pole for a mayor's State carriage, the city a sea-port; a brass repoussé book cover, the book "The Pilgrim's Progress," its size large quarto; a grille, to fill a semi-circular arch 10ft. wide, the design to be executed in wrought-iron, and to contain a central feature; a lantern in brass or iron, suitable for a parish church; wrought-iron balconette, 4ft. wide, projecting 3ft., and supported by cantilever; ornamental guard to prevent flower-pots falling into the street from the window sill; cast-iron stove and mantelpiece to overmantel, total height not to exceed 7ft. 6in., including overmantel; and lastly an ewer and basin, soap dish, and sponge basin. The method of execution of the drawings is left to the competitor, but the drawings must be practical and workmanlike, such as a craftsman would require. The seventeen subjects in

THE HANDICRAFT COMPETITION

are: A lin. square upright standard diagonally placed through bar, in ornamental head; a stanchion head and saddle bar, bilged; a clean welding of scrolls, not split; spray exhibiting husks and covered junctions on each side of the stem; spray and natural foliage; a panel, 18in. square, of interlaced bars and centrepiece scroll; a pilaster filling alternating scrolls and husks; a hinge with rose and thistle terminations; ornamental projecting trade sign, with name panel in pierced lettering; repoussé copper or brass plate, diameter about 12in., over a wrought-iron knocker; lead ornamental embossed head for 4in. rainwater pipe; two lead ears of different design to secure 4in. by 3in. lead pipe; a panel of a lady's card case; a key bow in gold, silver, or iron, for a dressing case; and a pewter Ewile. The Exhibition will be open from June 1st to 15th. A record will be kept of the time occupied, and in case of equality of merit, the advantage will be given to the competitor who has done the same quantity of work in the least time. All designs will have to be sent in by May 3rd. Besides the competitive section, it is proposed to collect a loan exhibition, representing different periods of Art metal work.

A VOTE of condolence with the family of the late Mr. J. Loughborough Pearson, R.A., was passed at the meeting of the Institute reported here. The President paid a warm tribute of respect to Mr. Pearson's memory, observing that he was one of the most distinguished of our ecclesiastical architects. Those who knew him must have loved him, and those have seen his work must have admired his genius. The vote was carried in silence.

PROFESSIONAL PROBLEMS.*

By T. WALTER L. EMDEN, J.P.

IT may seem ungracious, but it certainly is not meant so, if I say that I do not believe in societies as at present constituted, and that for most of the years of my professional existence I stood aloof from them, and only joined this Society because of its efforts to obtain a Registration Act for architects, and with a desire to help in this programme. I say this, not as being against such institutions which have sought to do good work, and no doubt have done much, but because I find, and have always found, that while they purport to give the public an assurance as to the capabilities of an architect, practically without

COMPULSORY REGISTRATION

they cannot do so. There is no compulsory regular examination, and no diploma issuable under the law as in the case of other learned professions; indeed, while anyone can set himself up as an architect, without any examination, and without previous study, experience, or competent knowledge, and as long as examination is voluntary, the best benefits of these societies are but small security to the public. Examination is no doubt more or less insisted on before entering the Royal Institute and other societies, but this does not meet the case, as while the use of letters indicating the connection of persons using them with any society may mean that some examination, more or less, has been accomplished; many, indeed by far the greater number, do not belong to any society and yet practise. Many of the most competent men practise without belonging to any society, so that it is seldom the public enquire, or care, if the professional man employed belongs to a society or not. Let me again point out and insist upon the fact, that as anyone, never mind what his position is, can call himself (even be he a labourer, or, as in a known case, an undertaker) an architect, surveyor, or engineer, without let or hindrance; and as

VOLUNTARY EXAMINATION

can afford no real protection to the public, that the architect employed will design sanitary and properly constructed buildings, I can but conclude that, except absolute compulsion is enforced under an Act for Registration, nothing will accomplish the exclusion of the incompetent. The duties of the architect, or master builder, no doubt originally covered the engineering efforts as well as the architectural efforts of the ancient world. Unfortunately, at the present day in England, and probably to a great extent because there is no State intervention in the shape of compulsory examinations (as in other countries), there has grown up in the work of the architect less knowledge of construction in its larger form, and a separating of engineering from the architectural work, and hence, want of artistic design in our great engineering works. The engineer has to be called in when a large or difficult work of construction has to be carried out, and the designs of our railway and other bridges and railway stations, &c., show the

WANT OF ARTISTIC EFFORT

there is in dealing with what are now called engineering works, as distinct from architectural. Could we, for an instant, compare modern aqueducts or viaducts with the ancients, with the advantage to the modern designer? Much has been done of late years by various Acts of Parliament relating to buildings, and for the preservation of public health. A serious difficulty, however, is that each step requires an Act of Parliament framed more or less by men with incomplete knowledge or experience of the necessities, while the alterations necessary in the present Acts so indirectly affect the public that it takes years before even the most simple or urgent necessity for alterations or modifica-

tions in the law become apparent and obtains a remedy. I cannot but think that much might be done if the Local Government Board could be made more regularly and consistently the recipient of information gained by local and other authorities of the

VARIOUS NECESSITIES IN BUILDING

and its sanitation. The Board should be authorised to set machinery to work to obtain from the various surveyors in the districts regular reports, and could therefrom draw information for the alterations necessary in our Public Health and Building Acts, invoking the action of Parliament in the same way as in a question of insanitary areas, by a Provisional Order. Much would thereby be gained and dangerous delays saved. Undoubtedly, and more particularly as far as London is concerned, the New Building Act is a step in the right direction, and one cannot but admire the courage and perseverance of Dr. Longstaff, L.C.C., who was chairman of the Building Act Committee. The more so that he, a layman (so far as building was concerned), set himself to work to become master of the enormous mass of details, and all the pros and cons and necessities for alteration, and should have succeeded in carrying through so voluminous an Act, as this necessarily was, to what must certainly be called a successful issue. No doubt it will prove of

GREAT ADVANTAGE TO LONDON,

and while its errors must be remedied as they appear, its benefits must not be forgotten, as the Act is a substantial step in advance. One of the difficulties which has to be contended with by the professional man is the overlapping of the powers of the various authorities. It is a crying evil in London, where the central authority deals with frontage lines, projections, construction, and all such-like matters, and puts in action its own surveyors, that there is in each district the surveyor of the local body also dealing, more or less, with the same subjects and other overlapping duties. If the central authority laid down the rules and regulations under such Acts as deal with these questions (after consultation with the local authorities), and the local authorities administered them, much expense to building owners would be saved, and the public also, by preventing

THE DUPLICATION OF OFFICIALS

and duties, and further friction, as useless as it is delaying, avoided, thus facilitating building operations to an enormous extent. To pass a set of plans under the present system is not only a complicated, long, and harassing process, costly to the building owner, but is without increasing the protection of the public—indeed, is wasteful and unproductive of any benefit at all. A very substantial fee might well be obtained from the building owner, under the simpler system for the passing of and licensing plans, leaving the owner better off than now, and making the public purse the richer. As a step in the right direction, it ought to be possible, and I think it is possible (were an effort made), to so arrange the surveyorship for the authorities that one surveyor in each district should suffice, and that the central body should delegate (as I have suggested, after laying down the rules under which the local authority should administer) the active administration to them, and so avoid overlapping, and facilitating very considerably building operations. Another

COMPLICATION IN TOWN BUILDING

is consequent upon our system of leases, and the necessary intervention of the surveyors to freeholder and intermediate owner; and here, as private rights are touched, it is difficult to frame laws to deal fairly with it, to save the uncertainty, expense, and delay, and yet fully protect owners' just rights. Indeed, it is so difficult and delicate a subject to handle, that it will be a bold man who accomplishes it. I make it as a suggestion, but as that only, that the building owner should be at liberty, after notice given to the freeholder or superior landlord, to make the alterations he may deem necessary, subject to a right to the freeholder or superior landlord to formally object, and the objection (failing agreement) being heard

and determined by a permanent official under the Local Government Board. I should like to turn for a moment to

SANITATION,

and ask you to consider how much might have been accomplished by the present time—how many lives saved, and what spread of disease prevented—had the professional man to pass thorough examination and obtain an intimate knowledge of the necessity of sanitation first, before practising. What I say does not apply to individuals, many of whom have done great and important work in this direction. But can it be said the Profession, as a body, has a thorough knowledge of this subject? By the neglect of each Government to provide for compulsory examination, and the registration of competent men, they have now much to answer for in this direction. In England, with our free trade principles, we have, I think I am right in saying, hundreds of systems and apparatus stated to be, and no doubt credited with being, good, and capable of accomplishing sanitary perfection, but, except by

THE TEST OF EXPERIENCE,

what examination into these claims is brought to bear? And specialists, each with their own specific, are called in instead of the architect, and no system is thoroughly or effectually exploited. Experience may often be dearly bought by those who have to submit to the use of some so-called sanitary apparatus or arrangement of house or other drainage until its defects are discovered. It is no one's business to say which is best, and even our local authorities pin their faith to different systems, no doubt recommended by their officials. How, then, can professional men be expected to deal more thoroughly than the authorities do? Surely this is folly, when so much depends upon what is used. Can it be wise in an age when vast numbers congregate together, and great cities are created in our own Empire, for such a state of confusion with regard to this most important factor—sanitation—to be allowed to go on unimpeded and almost unthought of until some great calamity visits us? The fact is, no public body and no authority likes to take the responsibility of recommending anything new; but I contend that the Local Government Board should be obligated by law to take up and examine into the necessities, and lay down what should be done. In latter years no doubt advance has been made, but, until some such power as I before suggested is delegated to the Local Government Board, and those whose duty it is

TO DESIGN AND SUPERINTEND BUILDINGS

are compelled to pass a thorough examination, no thorough knowledge can be assured, even though there depends upon it the life and the health of every individual citizen. With regard to the question of Art, undoubtedly much progress has been made during the Victorian era. When we look at the houses built not long before the accession of the Queen to the throne (such houses as form the various squares of London) we obtain at once a very fair exemplification of what was considered a good class of dwelling-house of that period. Compare these with a good dwelling house of the present period. Sanitarily and constructively we have improved, but certainly in comfort, luxury, and artistic design the advance made is strikingly great. Take again the shop of sixty years ago, and compare it with the artistic design of much of the work of the present day, and the advance will again be strikingly seen. If we turn from this to a higher branch of work; to our more public buildings in the shape of churches, hospitals, theatres, music halls, hotels, restaurants, &c., at once the luxury and artistic improvement are so marked that one can hardly believe the whole of it has been accomplished in the space of one reign. Moreover, when it is considered that the improvement has come about not because the State has lent its aid, but has been accomplished under many difficulties, it becomes a useful study to consider not only how much greater it would have been, but how much waste in its accomplishment might have been saved had compulsory examination and

* The Opening Address of the Session 1897-98, delivered before the Society of Architects, by Mr. T. Walter L. Emden, J.P., President, on November 25th, 1897.

registration protected the investor and public. This advance, however, speaks much and well for the energy and artistic effort of the architect, and, considering the difficulties he labours under, should not be forgotten. Too much credit cannot be given to those who have fostered and increased the strength of artistic effort in this country, overshadowed as it is by the question of almost everything having to be done by private enterprise, and that even in the most elaborate decoration of buildings for public use, the owner's first consideration must be that it shall pay. I would, before leaving this subject, like particularly to draw attention to the great spread, among the people at large, there has been in Her Majesty's reign in artistic teaching. Many institutions and schools have grown up by the efforts of the City and the London County Council, and other corporations and public bodies in the establishment of

TECHNICAL SCHOOLS,

and much has been done to educate those who have taste and intelligence, and are willing to devote their spare time to the study of artistic work. A short time back a small exhibition was made at the offices of the London County Council of work turned out from some of its technical schools, the work for the most part (I think I am right in saying) of young people of about fifteen years of age. The work consisted of some excellent examples of enamel, *repoussé*, carving, painted glass, and joinery, plumbing, and other work. Without taking into consideration the comparatively short time for which these schools have been at work, the work generally was highly creditable, while the artistic work showed such promise as bid within a generation to take away the stigma which has so long been placed upon the English people, that they are wanting in artistic design and taste in their work as compared with that which comes out of the French and some other Continental workshops. It has always seemed to me a pity and a neglected opportunity on the part of trades unions that they do not make an effort to improve their workers, set up an examination in their trades for each union, and thus be able to assure employers as to the competence of the man employed, and enable, by its certificate, the workers to show which are its best men. It would certainly serve a useful purpose; more useful, I think, than some of the other work the unions do, and I believe it would place them in a better and higher position in public opinion. I have often heard it stated that if the Profession of architect were to become a registered profession, dealt with by compulsory examination, that the

ARTISTS IN THE PROFESSION

would be hampered and prevented from taking up the Profession; but when it is seen that not only many of those who are actual workers with their hands by day can, in their evenings, turn out such good work, this reason against the compulsory registration of architects falls to the ground, as it would also if tested by the result of the efforts which in the old days were made by the great architects and artists, who often enough struggled through years of hard work in manual and other trades to make themselves, as they eventually succeeded in doing, artists. Indeed, the original architect was the master builder. It cannot be for a moment supposed that artistic effort can be deterred or kept back or even inconvenienced by a knowledge of construction and sanitation. It would be as reasonable to say that a sculptor or artist should not know the anatomy of the body, as his examination in it would be

DETRIMENTAL TO HIS SKILL.

I cannot think either that the Royal Institute gives credit to such a reason, or it would not have established an examination for those who wish to enter its ranks. Construction was the duty of the first designer of a building when there was no distinction of engineer and architect. As civilisation grew, the ornamentation, or the artistic portion of the architect's work, grew also; but it grew out of construction, and should be the refining and finishing of it and consequent to

it. The best specimens we have of Architecture are those which, by form and construction, give necessity for ornamentation. It would be difficult to say that the architectural

PROFESSION WAS NOT A GOOD ONE

for young men to enter; but it can safely be said that it would be a better Profession for them to enter if its status were more assured, as it would be if they had to pass a compulsory examination, proving their knowledge and title to professional position before assuming it. It would by no means discourage those who were worth encouragement, while it would keep out the element of uncertainty, and be an assurance to the public of the capability of the architect to design a building, and his capability also of seeing that the construction and sanitation were well carried out. We are often told that vested interests must be considered, and such vested interest in the Profession would mean admitting large numbers of incompetent men; but the delay in obtaining compulsory registration and examination only allows the evil to grow, and its establishment would stay it altogether, while death would, within but a few years, deal with the evil as it existed at the passing of the Act. But I personally do not agree that this vested interest is such a large factor, at least where it

ABSOLUTELY COVERS INCOMPETENT MEN.

When Parliament intervened to protect the public from quacks, both as doctors and surgeons, and later as dentists, there was this same vested interest and incompetency; yet where is it to-day? And all this has been accomplished during her Majesty's reign. No, the real difficulty is poor humanity, poor selfish humanity, those who fancy their position is now assured and forget others, and would keep them outside the pale. Those who think that having some letters to add to their names, forget the public and the greater interests at stake, for their own more personal interests, and prevent, or at least do nothing to help, the cause this Society has at heart. There is a strong feeling of jealousy in some quarters, and of a dog-in-the-manger principle (forgetful of all public duty) which causes opposition to what all are bound to acknowledge would be good and beneficial if accomplished. This feeling raises difficulties of detail and petty points, enlarges upon them, and while many of them are so trivial as to have no real existence, they are used all the same to conceal the real desire not to help the cause of registration. I trust this course will not serve their turn, and will not succeed in preventing the remedy being eventually obtained.

THE Court of Governors of the Hospital for Sick Children, in Great Ormond Street, has decided to purchase for £30,000 the adjoining premises. These, which are the property of the English Knights of the Order of St. John of Jerusalem, consist of the Hospital of St. John and St. Elizabeth, the Convent of Mercy, and the Chapel of the Knights-Hospitallers. Although the little Chapel of St. John is interesting from its association with the once powerful and universal Order of Malta, it is quite a modern building, and possesses no antiquarian or other interest.

We have received a copy of "The Indian and Eastern Engineer Diary" for 1898. It is well and substantially bound, and, in addition to the usual memoranda and calendar pages, interleaved with blotting paper, contains a host of information which is likely to be very useful to those interested in the engineering and commercial industries generally in the Eastern hemisphere. There is a full list of the names of those holding Government appointments in India, while tabulated statements show the stamp and other duties, Indian weights and measures, and the English value of same, the customs-tariffs, &c. A list of the Indian banks, clubs, and hotels is also included in the reference book, and another important feature is the railway directory, which gives full details of the several lines in India and other parts of the Eastern countries. The diary is published in connection with the Indian and Eastern Engineer, whose offices are at 50, Fenchurch Street, E.C.

CRIPPLEGATE FIRE.

THE ENQUIRY.

DURING the past week, Mr. S. F. Langham, coroner for the City of London, in accordance with an Act of Parliament promoted by the Corporation in the interests of the citizens, has been engaged with a jury at Guildhall in an investigation of the circumstances connected with the recent fire in Cripplegate. In view of the controversy that has arisen in reference to the structural condition of and position of the property destroyed, the proceedings have been followed with a keen interest. The various authorities, from the County Council downwards, were legally represented, and witnesses were examined and cross-examined upon all sorts of theories and statements. Indeed, although at the opening the Coroner stated that the "object of the inquiry was

TO ASCERTAIN THE ORIGIN AND RESULTS

of the fire," a vast amount of time seems to have been spent in listening to and explaining away criticisms upon the efficiency or otherwise of the Fire Brigade, whilst too little attention appears to have been given to the actual purport of the inquiry, which, surely, was intended to discover any defects in the burnt buildings that might have led to the outbreak. The legal representative of the County Council emphasised that "consideration of the means for preventing similar fires in future, and of the action of the fire brigade in extinguishing the fire in question, did not properly come within the scope of the present inquiry," yet these were the very points that seemed to be mostly discussed. At the commencement the City Surveyor (Mr. A. Murray) produced plans, showing the extent of the fire, and after evidence bearing on the actual outbreak, Mr. G. Vickery, architect and surveyor, 50, Gresham Street, was called. He said he was the architect of the premises 28, 29, 30, and 31, Hamsell Street. Nos. 30 and 31 backed on to 15, Well Street, where the outbreak was supposed to have occurred. They were constructed by Messrs. Mortar for Messrs. Harrison and Smith, the freeholders being the Goldsmiths' Company. There was nothing particular about the construction of the buildings. They had frontages of about 20ft. each, and were divided by party walls from basement to roof. There were four stories above the ground floor, so that they were six stories high. In the case of 15 and 18, Well Street, there were well-holes or lighting areas. The depth of the land from Well Street to Hamsell Street was about 75ft., so that the well-holes were necessary in order to get sufficient light into the centre of the buildings. Well Street was, roughly, about 25ft. wide, and Hamsell Street 35ft. or 36ft., with high buildings on either side. In these circumstances the lighting areas were a necessity, if the rooms of the warehouses were to be of any good. These lighting areas extended from the ground floor upwards to the roof, and were surrounded by windows to admit light to the different floors. They were open to the roof, but for the ground floor they terminated in a skylight. The basements were lighted underneath the ground floor by means of glass let into the floor, which was a very common way of lighting basements in the City. The staircases were either teak or pitch pine.

THERE WAS NO STONE STAIRCASE.

Stone was very objectionable for staircases in the case of warehouses of the sort under consideration. In answer to a question as to whether the buildings were erected on the principle of fireproof warehouses, the witness said they were constructed in accordance with the Building Act, and to the satisfaction of the authorities. The different floors were supported on wooden joists. The span was so short that there was no need of iron girders. It would have been a waste of money to use anything but wood. Wood was used for the floors throughout. The City Solicitor asked if the buildings were

run up quickly for the purpose of finding tenants? and Mr. Vickery replied that a building might be run up quickly and yet substantially. No doubt the buildings in question were erected under contract, and a reasonable and proper time allowed the contractors. They were not, however, speculative buildings, or built by a speculative builder. They were constructed under the supervision of efficient authorities, including the freeholders and the public bodies concerned. They were not, therefore, what was generally understood by the term "run up," although, with a heavy ground-rent payable on the property, no time was lost in completing them. They were certainly not "jerry built." They were light buildings, and the fact that he had not had occasion to inspect them for any defects since their occupation was an answer to the question as to whether they were "jerry built."—The foreman of the jury asked the witness what he meant by the remark that stone staircases were objectionable?—Mr. Vickery replied that so soon as the stone staircase of a building became exposed to fire it flew in pieces. The good old oak staircases that were put into buildings 100 years ago would stand the fiercest fire for hours, but stone staircases were a delusion, unless properly protected. People could not

AFFORD TO USE SOLID OAK

nowadays for such purposes, and he did not know that they could get it if they wanted it. It was almost impossible to render a building fireproof if combustible goods were stocked on every floor.—Among the subsequent witnesses was Superintendent Stubbings, who was asked if he could account for the fire spreading with such rapidity, and said the buildings were constructed "from the fireman's point of view, with an utter disregard of safety from fire. They were what he might call tunnelled buildings, and the openings at each end greatly assisted the fire to travel. Moreover, the streets were narrow, and the stock contained in the buildings was, in many cases, of an inflammable nature.—It was not till Friday that the jury were supplied with further professional evidence upon the structural details of the buildings.—Mr. E. Woodthorpe, F.R.S.B.A. and F.S.I., from his professional experience, attributed the collapse of these buildings to the ironwork letting the buildings down and to the fierceness of the fire. He found very few walls upright. Many had collapsed in his presence without any notice. The walls had been shaken by the sudden expansion and contraction of the iron, and the brickwork and stonework had been much damaged with the heat. He saw one wooden beam lying in Hamsell Street, but it had fallen down. It was not consumed. Asked for his opinion as to the cause of the fierceness of the fire, the witness gave it as the internal construction and the internal fittings of the buildings. In many of them there extended, from floor to ceiling practically, large wooden pigeon-holes with narrow passages between; in many of the buildings the staircases were separated, as they generally are in this class of building, by wood and glass partitions; the offices and rooms in many cases were divided by wood and glass partitions; in several of the buildings the walls were matchlined, and some of them painted. It was practically possible to construct a fireproof building, at any rate a building which would stop a large spread of fire.—The inquiry was adjourned.

THE architects selected for the Naval and Military Palace in the 1900 Paris Exhibition are Messrs. Auburtin and Umbdenstock.

THE Secretary of State for Foreign Affairs has received from Her Majesty's Minister at Lisbon copies of a Royal decree of November 18th inviting tenders, to be received at the Department of Public Works in that city by January 25th next, for the construction of the drainage works and sanitary improvement of the city of Coimbra. The conditions of tendering may be inspected at the Commercial Department of the Foreign Office any day between the hours of eleven and six.

Professional Items.

BURTON-ON-TRENT.—A new church has just been erected at Stretton, Burton-on-Trent, at a cost of over £30,000. The present edifice occupies a site somewhat removed from that formerly covered by the small, unpretentious parish church of St. Mary. It is cruciform, and has a massive central tower rising immediately over the choir. Stanton stone is used externally, but the interior walls are of Run-corn stone. The woodwork and the appointments are mainly in oak, and the flooring consists of stone quarries and wooden blocks. A high screen, of handsome design, and carved in exquisite taste, separates the chancel and the south chapel from the nave. It is surmounted by a cross of exceptional size and beauty, and, together with the choir stalls and other work hereabouts—not omitting the elaborately carved organ-case and the pulpit—has been carried out by Mr. J. E. Knox, of Kennington. The chancel is laid with black and white marble of a bold and effective design. There is much decorative work of a high order here, the roof being embellished with representations of angels' playing upon instruments. The roof of the nave is also particularly pleasing, being light in colour, and in keeping with the rest of the building. For the whole of this Mr. Charles Powell, of London, has been responsible. The only stained glass window at present in the church is at the east end, and is the work of Sir William Richmond, having been executed at a cost of £1000. The subject symbolises our Lord in His Majesty. There is no reredos proper, but a low enrichment of marble and alabaster is situated immediately behind the altar. There is, however, a dosel of great richness, worked with real gold. Much taste has been displayed in the south chapel, which has a beautifully decorated roof. There are also some fine examples of stone carving by Mr. Bridgman, of Lichfield. The church is lighted with hanging lamps, burning mineral oil, and the heating apparatus is so arranged that it cannot be observed by the public. The large and massive entrance doors are of oak, and are so constructed that during warm weather the lower portion may be closed while the upper portion remains open to admit air. One of the conspicuous features of the church is the font, which is raised on three circular steps of Frostley marble. These display the impress of innumerable fossils. The canopy, of carved oak, is very ornate, and contains in recesses eight sacred effigies. The brass lectern is exceedingly handsome. At the entrance to the churchyard, where there is a noble sweep of greensward, is a lych-gate. The church will accommodate 400 people. The building, which contains a fine organ by Hill and Son, London, has been erected by Mr. Halliday, of Stamford, from the designs of Mr. J. T. Micklethwaite (Somers, Clark, and Micklethwaite), Westminster.

EDINBURGH.—A new United Presbyterian Church has been erected in Fountainhall Road, Edinburgh. Situate on the south side of Fountainhall Road, the new church has been built to the designs of Mr. Graham Fairley, architect, Edinburgh. It is a handsome building, and adds considerably to the architectural features of the locality. Alike in plan and design, the edifice is an adaptation of the thirteenth century Gothic Architecture to the requirements of a modern church. Included in the plan are the traditional nave, aisles, transepts, and chancel; and while the nave is wide in span, the aisles are narrowed to the width of side passages. By means of this latter arrangement all the congregation can see the minister, whether at the lectern or in the pulpit. There is no gallery. The chancel, in which stands a communion table of oak, is reserved for the use of the elders; and the choir are accommodated in the east transept, where accommodation for the organ is also found. So far as the exterior of the church is concerned, the design suggests that the architect has had in view the well-known front of Dunblane Cathedral—different pro-

portions in width of front and of height, of course, necessitating a different treatment of details. Dignified simplicity of design—almost approaching to plainness—in the large and solid grouping, in contrast to the gaining of effect by smaller grouping and richer ornamentation, is the outstanding feature of the structure; and in order to secure a solidarity of appearance, as it were, from the very base, Mr. Fairley has placed a low parapet wall of stone in front of the church, and separating the ground from the footway, instead of an iron railing, which is usually adopted in such cases. Internally the building has an almost plain but at the same time a dignified and impressive appearance. In the vestibule, in the west transept, and in the clerestory of the nave—on the west gable of the building—are beautiful memorial windows, all designed so as to harmonise with the style of the building. Placed on the west side of the chancel, the pulpit is of most artistic design. It is of Caen stone and red marble, and in the niches are figures of the Saviour and of the Apostles Peter and Paul. The desk is of polished brass work. In the centre of the chancel is a lectern of hammered brass work, and on the east side a handsome font of the same material as the pulpit. The church will accommodate a congregation of 600.

GLENADDEN, NEAR PETERHEAD.—There has been about 16 acres of ground set out for the erection of bondwarehouse, reconstruction of distillery, malting and workers' houses, excise offices, house and reservoirs. The work is being proceeded with in detachments, as there the distillery and maltings are working. Messrs. Swanston and Legge, Kirkcaldy and Burntisland, are the architects.

LEEDS.—In the new operating department at the Leeds Infirmary all the most modern improvements have been introduced. The whole department is warmed and ventilated by air which has been washed on the "Plenum" system, and of course open fireplaces and open windows are done away with altogether. The temperature can be raised to 65deg. F. in about a quarter of an hour, and the atmosphere is dry and pure, this being essential to the modern treatment of wounds. There are two theatres, and each theatre has its separate waiting and anæsthetic rooms, communicating by double doors. The walls of the theatres and instrument room are lined with opaline of a light green colour, fixed in large slabs, to avoid joints as much as possible. The floors throughout are constructed of terrazzo, and slope towards a central gully, so as to allow of easy flushing with a hose pipe. A novel feature is the provision of distilled water, both hot and cold, in addition to the ordinary service. The fittings are entirely of glass and iron. The instrument cupboards, which are placed in a room connecting the two theatres, are of the newest available design, and made of glass and gun metal. The operating tables are of metal, enamelled white, and the dressers' and sisters' tables are of white metal and glass. The sterilisers and water heaters are worked by electricity, and the whole department has the electric light. The patients' comfort has not been forgotten. They enter a waiting-room, well warmed and lighted, from which they pass to the anæsthetic room. When under the influence of anæsthetics, they are wheeled forward into the operating room, and thus the patients never see the actual preparations for the operation. The students' benches are of polished teak, and the same material is used for the doors between the various rooms. A recovery room and a surgeons' retiring room are also provided. The department is probably one of the most complete in England.

LONDON.—The foundation stone of a public library, in the parish of St. George the Martyr, has been laid by Mr. J. Passmore Edwards. The building will occupy a corner site on the north side of the Borough Road, within a few yards of St. George's Circus. It will consist of a basement with two floors above, and on the ground floor will be the news rooms, lending library, ladies' room, and boys' room.

The reference library will be located on the first floor, and a set of rooms will be provided for the librarian. The design for the front and two end elevations include terra-cotta dressings. The figure subject over the entrance is to be illustrative of Art, Science, Literature, and Music; and that in the gable will include "The Tree of Knowledge," with crowning figure of "Wisdom," and the arms of the City of London. The building to be erected is designed by Messrs. C. J. Phipps and A. Blomfield Jackson, of 26, Mecklenburgh Square, W.C., and the contract for the work has been given to Messrs. James Smith and Sons, of South Norwood. The amount of the contract for the building is £5556, and there will have to be provided in addition to the cost of the land the sums of £500 for redemption of land tax, architects' commission, &c., and £1500 for fittings, furniture, and cost of books, making the total amount required £12,556.

NOTTINGHAM.—The building operations in connection with the new Empire Music Hall, Sherwood Street, Nottingham, are rapidly approaching completion. The total area upon which the building stands is 126ft. in length by 73ft. in width. The proscenium opening is 29ft. square, and the height from stage floor to "grid" is 48ft. The depth of the stage is some 36ft. All the staircases and the dressing-rooms are to be fireproof, and the hall will be heated with hot-water pipes. The character of the interior decorations will be Oriental, and the upholstery will be of an ornate character. With reference to the seating accommodation, there are to be fauteuils, two circles, pit, and gallery. The latter is to accommodate over 700 persons, the pit over 600, the upper circle some 400, and the dress circle about 220, whilst nearly 80 seats will be provided by the fauteuils. The total holding capacity may be reckoned at considerably over 2000. The architect is Mr. Frank Matcham; the clerk of the works is Mr. Chas. Greenman; the contractors for ironwork and the construction of the sliding roof are Messrs. Whitworth and Co., of London; Messrs. Longdon and Co., of Sheffield, are the contractors for the building; Messrs. Danks and Co., of Nottingham, supply the gas fittings; and Messrs. Blackburn, of Nottingham, have the contract for the electric lighting.

TODMORDEN.—The Free Library, which was opened last week, is of the seventeenth century style of Architecture. Although outwardly not imposing, it is admirably adapted for the purposes for which it is intended. All the rooms are spacious and well fitted. The latest improvements in the way of shelving and indicators have been adopted in the furnishing of the library. This room, the general reading-room, and a reading-room set apart for the use of ladies, are on the ground floor. The library measures 25ft. by 17ft.; the general reading-room 56ft. by 25ft.; and the ladies' room 24ft. by 16ft. The building and site cost £4000.

WEST HAM.—The West Ham Corporation has instructed Mr. A. Saxon Snell, F.R.I.B.A., to prepare plans for the erection of Public Swimming and Private Baths at Plaistow, E.

WIGHTON.—The parish church of All Saints has been re-opened for public worship after restoration. The roof, which consisted only of slates and rafters, has been thoroughly repaired and cladded. The walls of the nave and aisles have been cleaned, in many places replastered and distempered, and the pillars divested of the disfiguring whitewash with which they were formerly covered. The old square pews and "three-decker" pulpit, which occupied a considerable space in the nave, obstructing the view of the east end, have been removed, and the whole of the interior reduced to a more churchlike and uniform appearance. The handsome Perpendicular pillars, among the finest in the county, now that their bases are rid of the unsightly pews which concealed their beauty, are seen to the greatest advantage. The work has been carried out by Mr. T. Hinson, builder, of Wells.

Under Discussion.

THE WINTER SESSION.

"CELTIC ART."

MR. T. H. THOMAS, of Cardiff, lecturing before the Cardiff Naturalists' Society on "Celtic Art," referred to the simple elements of Celtic Art as illustrated by the rude decorations on the oldest relics, and coming down to successive ages showed views of necklaces and other personal ornaments and also views of household utensils. Some of the decorations on the weapons of war shown on the screen were very beautiful, nearly all the designs containing the "revolute" ornamentation, so characteristic of Celtic Art. An especially interesting portion of the lecture was that in which Mr. Thomas dealt with the question of Celtic tumuli and cromlechs. With regard to the origin of the latter, the more they saw of the skill of the Celts as artificers, the more easy it was to be seen that they possessed the knowledge of engineering to a very considerable extent. Coming down to later times the lecturer pointed to the fact that the illuminations in the earliest Celtic missals and other books still preserved the elements which had been the main characteristic of the earliest Welsh Art, as shown on the bronze shields and armour of an earlier age.

A NEW METHOD OF SHORING BUILDINGS.

At a meeting of the Architectural Association of Ireland held recently at the Grosvenor Hotel, Dublin, the President in the chair, Mr. Chas. Geoghegan, F.R.I.A.I., M.Inst.C.E.I., read a paper on a new method of shoring buildings and inserting girders by means of iron frames. The lecturer described extensive alterations carried out by him at the Royal Bank of Ireland, the engineering work being done in conjunction with Sir Wm. Anderson, K.C.B. The lecture was illustrated by diagrams.—Mr. R. Butler proposed and Mr. Geo. Sheridan seconded a vote of thanks.—We hope to publish Mr. Geoghegan's paper in an early issue.

VANISHED LONDON.

At the third meeting of the British Archaeological Association, Mr. Thos. Blashill in the chair, the first portion of an interesting paper was read by Mr. Andrew Oliver on the buildings of "Vanished London." This was abundantly illustrated by a large number of scarce and valuable old engravings and maps of London of the last two centuries and the early years of the present century. Amongst others exhibited were views of Furnival's Inn, Guildhall Chapel, the Stocks' Market, and Ely Palace as it appeared about the year 1536. In this building died Chancellor Hatton in 1591. The last of the Hatton family died in 1772, when the property reverted to the Crown. Views of Holborn Hall in Shoe-lane—the site of which is now occupied by Messrs. Pontifex and Co.'s works and Bangor House—were exhibited and described.—In the discussion which followed the Chairman and others took part, and Mr. Williams remarked that the first house rebuilt after the Great Fire in 1660 was still situated at the corner of Friday Street.—Mr. Gould also spoke as to the actual position of Ludgate, and mentioned that when pulling down Paul Pindar's house in Bishopsgate it was found to be built entirely of oak which had been whitewashed over, and was not of timber and plaster as supposed. The front elevation of this picturesque house is now in the South Kensington Museum.

An exhibition devoted to Fine Arts and Art Industries will be opened at Barcelona next April.

The Whitechapel District Board of Works has decided to purchase land adjoining the destructor premises, estimated to cost £5000, for the purpose of erecting an electric lighting station to provide an installation for the district.

Trade and Craft.

THE SCULPTURED MARBLE COMPANY.

The Brighton Jubilee Monument of Her Majesty the Queen was unveiled on the 8th inst. The contractors were the Sculptured Marble Company, of 11, Queen Victoria Street, E.C., a firm that supplies to importers and exporters Italian marbles direct from the quarries, as well as every description of worked marble and statuary. They also make a speciality of designing and executing public monuments, employing sculptors and masons, either English or Italian, who, in their judgment, are best suited for the work. The monument just unveiled at Brighton stands about 20ft. high. The statue itself is 9ft. high, standing on a pedestal 9ft. 6in. Both are executed in Ravaccione marble, said to be the only kind capable of resisting the effects of a northern climate. The statue is



STATUE OF THE QUEEN AT BRIGHTON.

the work of a sculptor of eminence, who has been entrusted with commissions for monuments throughout the world. This is his third statue of Her Majesty, the others being sent to India and Australia. He has also executed statues of Lord Beaconsfield, Right Hon. W. E. Gladstone, Sir Theophilus Shepstone, Mr. Charles Dickens, Presidents Garfield and Lincoln. His monument in Bahia, to represent the expulsion of the Portuguese from Brazil, is 84ft. 6in. high, executed in marble and bronze, and is a masterpiece of combination of splendidly-sculptured statues, bas-reliefs, and masonry. For his Majesty the King of Italy he executed eighteen colossal statues, and for his native town a magnificent monument, 30ft. high, to represent General Garibaldi. He has been awarded

many gold and silver medals, and created a cavalier of the Crown of Italy and of Spain; he has also received the commendation of the order of Isabella the Catholic. He has just executed busts of Her Majesty the Queen, and of Her Majesty the Queen of Italy, and is now engaged upon the bust of his Worship the Mayor of Brighton. The statue of the Queen at Brighton has been described by the Press as a faithful likeness, exhibiting very great skill in the treatment of detail, and as an ornament to the town of Brighton. Photographs of the statue were sent to Her Majesty, who replied as follows: "Windsor Castle, December 4th, 1897. Dear Sir, I am commanded to thank you for the photographs which you have been good enough to submit for the Queen's acceptance of the statue of Her Majesty which has been presented by the Mayor of Brighton. I beg to thank you for your kindness in also sending me a copy of the photograph. Yours faithfully, Arthur Bigge. The Manager, The Sculptured Marble Co., 11, Queen Victoria Street, E.C." We understand the Company is sending out a monument in Ravaccone marble for erection at Cape Town.

ARCHITECT AND CONTRACTOR.

The following case comes from Johannesburg:—In the Court of the First Special Judicial Commissioner, the other day, A. Haupt, an architect, sued the Freeman Cohen Consolidated Company Limited, for recovery of £86 for architect's fees. The defendant Company had engaged the services of Mr. Haupt as their architect in connection with a building being put up by them, and it coming to their knowledge, when tenders were called, that the clerk in the office of Mr. Haupt had asked one of the contractors to put £100 on the price at which the contractor had tendered to complete the building, the defendant Company refused to employ the architect further.—The following is the text of Mr. De Beer's judgment: The question to be decided by the Court is whether the defendant Company was justified, on account of information obtained, in cancelling the contract between itself and the plaintiff. From the evidence it cannot be proved that there was any collusion between plaintiff and his clerk, but it is clear that the defendant Company had grounds for cancelling the contract—firstly, because the deception was attempted by a person who represented plaintiff at his office; and, secondly, because there was no possibility that the clerk could profit by his fraudulent conduct without the knowledge of plaintiff. For the rest, defendant Company acted entirely *bona fide* in not making any use of the plaintiff's plans, specifications, &c., and judgment must, therefore, be given in favour of the plaintiff for the sum of £3 10s. as tendered, with costs to date of tender, further costs for the defendant.

MESSRS. A. BOYD AND SON.

Messrs. A. Boyd and Son's "Book of Fireplaces," a copy of which we have just received, claims attention not only as containing a varied and artistic collection of fireplace designs, but because, incorporated in the same work, are suggestions as to warming and ventilating, the treatment of troublesome chimneys, &c. The designs illustrated are chiefly inexpensive varieties of a decorative description, exhibiting in many cases a striking originality, whilst there is a general wealth of artistic treatment which must appeal strongly to a cultured taste. The front cover of the catalogue is adorned with a very pretty design of a Louis XV. fireplace; a more elaborate design of the same period is also reproduced showing special decorated porcelain sides treated in colour or in applied brass work. The effect is richly decorative. Notable among other designs are a register grate with electro bronzed canopy, an engraved brass register grate of Louis XVI. design, with bas relief ornaments, vases, and mouldings, and bright iron covered slips at sides—a very neat pattern—two polished bright grates, one of Flemish design, with bas relief ornaments, projecting canopy, plinths, and mouldings, and the other with brass enrichments on the coves

and on the canopy; a polished black register grate, with decorated tile jambs and frieze, and bronzed bas relief plaque in centre; a register grate of Italian design, with fire-lump body; and lastly, a dog grate in bright iron, the ornaments and other parts in brass. Although the other designs are principally of the Louis XV. and Louis XVI. periods, one or two are representative of the Old English and of the Gothic styles, and merit of design is equalled only by the excellence of material and workmanship in all Messrs. Boyd and Son's manufactures. The firm's works, it may be mentioned, have been in operation for a century, the name of Boyd having become very largely associated, not only with the subject of fireplaces, but also with warming and ventilating and other matters pertaining to the health of the home and of our public buildings, on which subjects Mr. R. W. Boyd is the author of several books and pamphlets.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BOURNEMOUTH.—For new relief sewers in the sea-church and Palmerston roads, Boscombe, Bournemouth. Mr. F. W. Lacey, borough engineer and surveyor:—
G. Troke £2,960 0
Cooke and Co. 2,748 0
S. Saunders 2,622 0
F. Osman* 2,298 0
*Accepted.

BRIDLINGTON QUAY (Yorks).—For the erection of house, conservatory, &c., for Mr. J. Jefferson. Mr. J. Earnshaw, architect, Bridlington Quay:—
W. Hosenard 272 10
W. Moody 636 7
W. Barnes 656 0
E. Corner, Bridlington Quay (accepted) £650 0

BROMLEY (Kent).—For erecting a small villa in Crown-lane, for Mr. W. Watson. Mr. John T. Grubb, architect, Bromley:—
H. Chapman £48 11
T. Hutchings (accepted) 450 0
R. Harmer* £365 0
*Withdrawn.

BURSLEDON (Hants).—For the erection of a bungalow and gardener's cottage, Netley Common, for Col. Perkins. Mr. Norman H. Atkins, architect, Fareham:—

	Gardener's Bungalow.	Cottage.
H. Stevens and Co.	£1,841	£457
T. Rashley and Son	1,686	383
Exors. of the late William Franklin	1,652	394
G. H. and A. Blackman (accepted)	1,425	359

CANTRAY (Inverness).—Accepted for erecting a shooting lodge, for Major Davidson, of Cantray. Mr. Robert Black, C.E. and architect, Inverness:—
Masonry.—Hugh Cameron £719 15 0
Carpentry.—Fraser and Macdonald 835 16 0
Slating.—James Gray and Son 194 9 0
Plumbing.—Mackay and Maclean 266 0 0
Plastering.—C. R. Gallie 236 0 0
Glazing, &c.—Donald Macdonald 88 0 0
Bells and Beams.—Rose Street Foundry Co. 15 12 0
[All of Inverness.] £2,405 12 0

CARDIFF.—For the construction of a service reservoir (3,000,000 gallons), water-tower, keeper's house, &c., Penylan Hill, for the Corporation. Mr. C. H. Priestley, C.E., Town Hall, Cardiff:—
T. W. Ridley £11,984 0 6
J. Strachan 11,064 10 6
J. Allen 10,458 13 3
J. Vevors 10,674 10 6
Turner and Sons £9,450 12 7
H. Gibbon, Cardiff 9,419 0 0
diff* 9,419 0 0
A. S. Morgan & Co. 7,784 18 2
*Accepted.

COLCHESTER.—For the erection of nurses' home, laundry, &c., at the hospital, for the committee. Messrs. Goodey and Cressall, architects, Victoria-chambers, Colchester:—
R. Beaumont £3,544 11
G. Grimwood & Son 3,473 0
E. West 3,400 0
F. Dupont 3,400 0
H. Everett & Son £3,400 0
S. Dobson and Son 3,390 0
W. Chambers, Colchester 3,289 0

DAWLISH (Devon).—For laying about 1,200 yards stone-ware pipes, &c., for the Urban District Council. Mr. J. S. Delbridge, surveyor, Priory Terrace, Dawlish:—
Sanders, Harding & Co. £783 16 2
C. Co. 691 0 0
Grounds & Newton 685 0 0
Mingo and Boone 587 12 0
J. Wescott 558 7 6
Stephens and Son £547 9 4
Thomas 544 16 7
Hawking and Best 529 10 2
Dawlish *Accepted.

ELGIN (N.B.).—For the erection of excise offices, house, and warehouse, Strathpey, for Messrs. J. & G. Grant, Glenfarclas Distillery, Ballindalloch. Mr. C. C. Doig, architect, Elgin:—
Building.—R. J. Mitchell, Huntly
Carpentry.—T. G. Archibald, Huntly
Slating.—W. Leslie, Lossiemouth
Plumbing.—J. Hunter, Elgin
Painting.—J. Kintrae and Son
Ironwork.—Jas. Abernethy & Co., Ferryhill
Foundry, Aberdeen

ENFIELD.—For additions to school, Chesterfield-road, Enfield Lock, for the School Board. Mr. G. E. T. Laurence, architect, 181, Queen Victoria-street. Quantities by Messrs. D. Campbell and Son, 4, Finsbury-circus, E.C.:—
Knight and Son £2,745
J. Chessum and Sons 2,524
General Builders, Ltd. 2,500
P. Bayard 2,289
C. H. Hunt 2,250
E. W. Newman 2,195
J. Smith and Son 2,185
Batley, Sons, & Holness £2,045
G. Wilkinson and Son 2,014
W. Lawrence 1,943
A. Fairhead and Son 1,927
Ponder's End* 1,897
G. Godson and Son 1,875

*Accepted subject to approval of Education Department.
ILFORD.—For erecting fifteen villas in Auckland-road. Messrs. Verleyck and Dunn, architects:—
Messrs. Verleyck and Dunn £4,799 0
G. Lewin 4,417 0
T. E. Mitchell 4,410 0
J. Silcock 4,287 10
Hammond and Sons £3,647 0
F. Almond 3,600 0
F. Willmott 3,409 0

LONDON.—For pulling down and rebuilding No. 1, Little James-street, Bedford-row, W.C., for Mr. H. E. Holmes. Mr. Lewis H. Isaacs, architect. Quantities by Mr. J. F. Bull:—
H. King £1,167
C. W. Patten 1,117
R. E. Worsley and Co. 1,112
H. J. Woodrow £1,095
R. Bristow and Sons* 1,092
*Accepted.

LONDON.—For forming new waterproof cellar, structural alterations, with new front, new drainage and sanitary, and repairs throughout, including trade fittings, &c., plete, to "Collings" off-license beer and spirit house, grocery and provision stores, Neasden-lane, Willems, N.W., from plans and specification prepared by Mr. Art Farmer, of Southfields, S.W., for Messrs. Thorne Bros. quantities:—
Allard and Co. Too late
Cowley and Drake £2,210 0
Easterbrook and Son & Puttick Bros.

MALLAIG (N.B.).—For the erection of business premises for Mr. A. S. Macintyre. Mr. Dun, Cameron, and Inverness. Quantities by architect:—
Wm. Bain Cregarroy, Benbecula £8
MALLING (Kent).—For building a pair of cottages Mr. T. Mead. Mr. John T. Grubb, architect, Bromley:—
W. Brown 308 10
J. E. Grayson* *Accepted.

MORLEY (Yorks).—For the erection of seven town houses (joinery work only), for Messrs. W. and H. Syme Newton and Asquith. £310 0 David Furness
N. Holroyd 308 10
J. E. Grayson* *Accepted.

NEWHAVEN.—Accepted for proposed alterations additions to business premises, High-street, New South, for Mr. J. Bannister. Mr. W. Cooper, architect, Havlock-road, Hastings:—
M. Woolger, Newhaven £4

PONTARDAWE.—For the erection of business premises for Mr. David Lewis. Mr. W. W. Williams, architect, Wind-street, Swansea:—
Walters and Johns £2,170
John Griffiths 1,990
Williams and Davies 1,880
John Rees, Ystalyfera* *Accepted.

PORT AUGUSTUS (N.B.).—For making over a new approach to Glendoe Shooting Lodge, Lovat Es for Mr. Herbert Weld Blundell. Mr. R. Black, C.E. Union-street, Inverness. Quantities by the engineer:—
Chisholm and Co. £1,187 10
R. Fraser 1,092 10
W. Wilson 976 0
Smith and Imry 976 0
Watt and Co. 976 0

SEAFOOD.—For the erection of a country doctor's house, Broad-street, Seaford, Sussex, for Dr. W. P. Morgan. Wm. Cooper, architect, 21, Havlock-road, Hastings:—
J. Simmonds & Co. £2,900 0
C. Moring 2,200 0
S. H. Perry 2,140 0
F. Cruttenden 2,200 0

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17 1/2 x 3 x 3	12 3	11 2	16 6
17 1/2 x 3 x 2	8 9	7 11	11 8
17 1/2 x 3 x 1 1/2	6 9	6 0	9 1



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SWANSEA.—For additions, &c., to Plasmarl School, for the F. D. School Board. Mr. G. E. T. Laurence, architect, 181, Queen Victoria Street. Quantities by Messrs. W. Barber and Son, 22, Buckingham Street, Adelphi:—
 W. Williams £5,316 0 D. Jenkins £1,750 0
 Thos. Watkins & Co. 5,208 0 Walters and Johns 4,696 0
 J. and D. Jones 5,150 0 Lloyd Bros. 4,600 0
 Thos. Walters 4,935 10 Henry Billings 4,595 10
 Gustavos Bros. 4,930 0 Thos. Davies 4,540 0
 I. and F. Weaver 4,885 0 Bennett Bros.* 4,100 0
 Elias Morgan 4,865 0 [All of Swansea.]
 *Accepted subject to approval of Education Department.

WANSTEAD (Essex).—For erecting a house in Grove Park. Messrs. Potts, Son, and Hennings, architects. Quantities by Mr. G. Fleetwood:—
 Mundy £1,420 Norton £1,368
 Scott 1,397 Willmott 1,243
 Jolliffe 1,373 Hutchens, Wanstead* 1,190
 *Accepted.
 WIMBLEDON.—For alterations and repairs to "Grosvenor House," The Ridgway:—
 C. W. Patten £470 Parson and Townsend* £312
 R. Bristow and Sons 349 *Accepted.

WIMBLEDON.—For making-up Avondale-road, or the Urban District Council:—
 H. L. Crouch 2933 John Mowlem and Co., 63
 Edmund Hes 659 Westminster*
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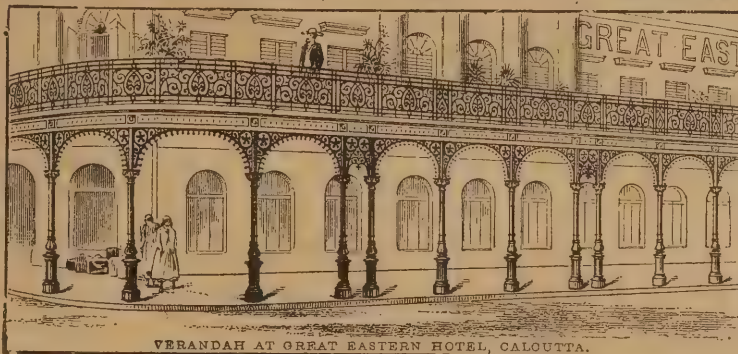
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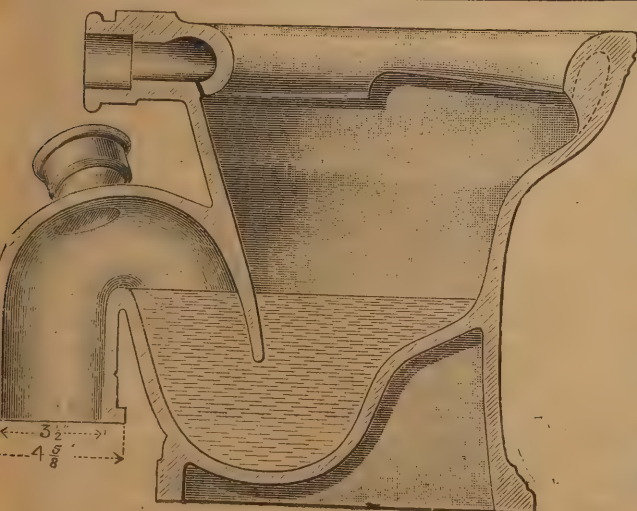


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WM. HENRY TALBOT,
Town Hall, Manchester, Town Clerk,
December 2nd, 1897.

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E. J. GOWEN,

Town Hall, Walthamstow, Clerk of the Council.
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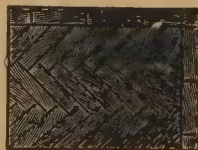
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SEA DEFENCES.*

BY RICHARD F. GRANTHAM,
M. INST. C. E., F. G. S.

(Continued from page vii.)

AT Scarborough the North Sea wall (see Fig. 6), 3600ft. long, was built 1886—1890. The foreshore consisted of a layer of sand and gravel, varying from 5ft. to 2ft. thick, overlying shale which was bared in rough weather. Within twelve months of the completion of the wall, the erosive action of the sea was found in some places to have scooped out the shale to a depth of 3ft. A stone pitched apron, 15ft. wide and 800 yards long, bedded in concrete, was added in 1891.

At Meadfort, Torquay, the sea wall was founded on greywacke, which was so hard that blasting had to be resorted to, and yet the foundations were undermined 4ft. in depth. The sea removed the rock from the face of the wall below the footings, and so altered the character of that upon which the wall rests that what appeared, when the wall was built, to be solid rock, is now a clay shale, which is utterly unfit to support any weight to resist the action of the sea, even for a few hours.

A wall built in steps, such as at Margate (see Fig. 7), while it does not prevent scour in heavy storms, appears to the author to be the best form. The body of water is broken as it strikes the wall so that it is not projected upwards to the same extent, and the return to the shore is retarded, so that scour is diminished.

The foregoing examples have been adduced to show that the foundations of nearly all sea walls, whatever the form of the wall may be where much exposed, yield in time to the resistless scour brought to bear upon them, and the walls are inevitably undermined and the surface of the shore lowered, unless they are protected by groynes.

III. Groynes.—The author stated at the outset that drifting sand and shingle are the most important elements to be considered in preventing the encroachment of the sea. The function of a groyne on the sea shore is to effect the waves so that the shingle, &c., transported by them, may be deposited and retained in the vicinity of the groyne, while the object of the deposition and retention of the shingle, &c., is to gradually raise the level of the beach and foreshore. The height to which it is intended to ultimately raise the

groyne should be so adjusted as while retaining sufficient drift to stop the run of the waves, the surplus may be allowed to pass on for the protection of the shore to leeward. The groyne should be long enough to prevent the sand and shingle passing its lower end too readily, for if too short, the waves, during on-shore gales, drawing the shingle, &c., down from the beach, will carry it to leeward, so as to partially deplete the bay formed by the groyne.

It is often expected that the erection of a groyne will immediately create a beach. But groynes will only arrest that which is traveling along the shore, and they do this at a rate

The effect of the interception of the drift is strikingly seen at the fine masonry groyne, built by the late Sir John Coode, at the east end of the Hastings frontage. On the west side of the groyne a large quantity of shingle has accumulated, forming a safe and extensive beach for the fishermen's boats; but on the east side of the groyne there is deep water, and the rocky shore is bare. The cliffs, however, being high and of rock, no harm is done.

It will be interesting at this point to refer to what has been done, apparently with much success, on the Ligurian coast of Italy. [And here the author quotes from the minutes of

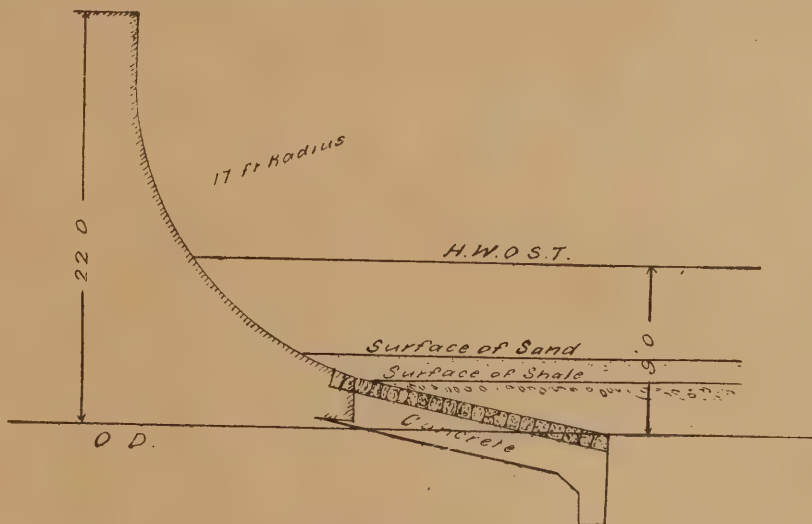


FIG. 6. SCARBOROUGH.

depending upon the supply of the drift. It may be small or great, so that the bay or bays formed by the groynes may not be filled for some years, or they may be filled in a short time, before the beach has accumulated to such a height as to check further inroads of the sea. A series of groynes, for instance, will require a longer time to fill than a single groyne, for the reason that in the former case the bay or bays to leeward need their share of sand and shingle, while, if the condition of the lee side may be disregarded, a single groyne may be built or planked up to its ultimate height very quickly. It is always most important that groynes, if of timber, should be planked up only as the shingle, &c., accumulates against it.

proceedings of the Maritime Congress of 1893.]

"The most noteworthy of all the works undertaken are those on the railway from Genoa to Ventimiglia along the beach at Cornigliano. The beach, the direction of which is E. $\frac{1}{4}$ S., was considerably eroded for a length of about 800 metres by the violence of the waves under the prevailing S.W. wind. Every winter the line was much damaged. An attempt was made to protect the bank by a massive longitudinal sea wall, but the sea gradually undermined the wall, and the structure slowly disappeared in the sand. M. Parodi having been consulted, advised the construction of a series of groynes, and this course it was decided to adopt. From 1884 to



Fig 8.

* A paper read before the Society of Engineers.

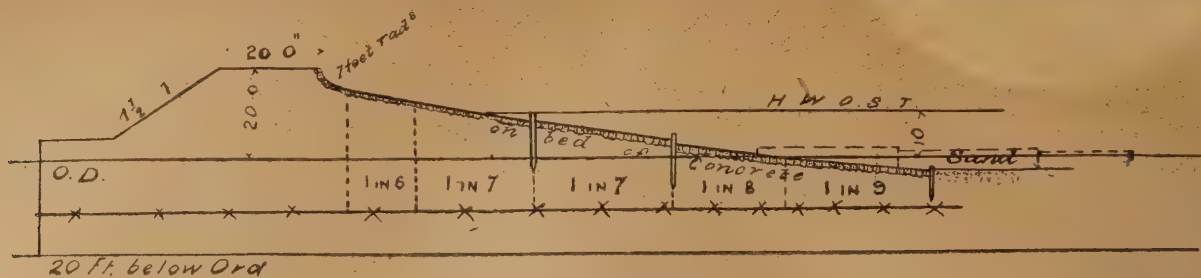


FIG. 9. DYMCHURCH.

1892 four groynes were constructed, covering a distance of about 550 metres, and at respective intervals of 103, 248, and 195 metres, and lengths increasing from west to east of 30, 65, 70, and 112 metres, with a depth of water at the head from 3.25 to 5 metres.

"After the execution of these works the railway received no further injury. The diminution of the beach was stopped, and at present there is every tendency to increase, the submerged slope being silted up, small banks forming at each groyne, and a beach 50 metres wide being deposited on the eastern side of the groyne nearest to the mouth of the Polcevera, from which most of the material is conveyed.

"The effect is less conspicuous on the other groynes; and it is evident that this groyne, which is of much greater length—112 metres—than the others, and extends into a depth of 5 metres of water, projects too far relatively to the neutral line of the south-east waves, which chiefly bring the suspended materials to the beach from the Polcevera, and which has a maximum height of about 2 metres. This groyne, therefore, checks the regular spreading of the material, and hinders the filling up of the beach on the western side of the structure."

The conclusions arrived at by the Italian Maritime Hydraulic Engineers are:—

"1. Groynes are the best form of structure by which a beach can be protected from erosion, provided that there is a sufficient quantity of suspended material brought to shore to replenish the surface.

"2. If it is required to raise or extend any length of beach, the groynes must not be carried out too far, i.e., they must stop short of the neutral line, corresponding to those waves that cause the greatest amount of materials to move along the beach.

"3. If it is desired to increase the beach at one point only, or for a relatively short distance, it is necessary to construct one groyne of sufficient length to extend beyond the neutral line.

"4. As it is often difficult to determine which are the waves that cause the maximum quantity of material to move along the shore, it is advisable to curtail the length of the groynes until experience has shown for each one individually to what extent it is necessary to prolong them.

"5. As groynes should be able to withstand any yielding of foundation without damage, it is better to construct them of rubble stone than of masonry or concrete."

It is important to observe that on the coast referred to the rise of tide is very small, and, as it appears, the material transported by the waves is derived from the matter brought down by the rivers discharging into the Gulf of Genoa. But the evidence afforded by a perusal of the paper from which the foregoing extracts have been made seems conclusive on the points.

- 1st, That the drifting of the materials along the shore is caused by the wind waves, and
- 2nd, That in certain situations groynes are better adapted to protect the coast than a longitudinal wall.

The timber groynes built by Mr. R. Pickwell, at Withernsea, on the Yorkshire coast, in 1870-1871, by arresting a large quantity of shingle and sand, stopped the erosion of the cliffs and the overflow of the sea on to the low-lying land. The trend of the coast there is north-west, and there is no great projecting point or harbour to intercept the passage of the great quantity of drift derived from the waste of a long length of coast. The groynes varied from 300ft. to 350ft. in length, and were fixed 200 yards apart, at right angles to the coast line. The top ends were fixed 12ft. above H.W.O.S.T., and the lower end 6ft. below that level, or from 3ft. to 4ft. above the then surface of the shore. The top five rows of planks were added only as the beach grew. The groynes, when completed, stood from 8ft. to 10ft. above the level of the high beach, and from 4ft. to 6ft. above that of the lower beach. In 1876 four of the groynes at the south end were completely buried, and the other two for two-thirds of their length. The ordinary high water spring tide mark was from 50 to 80 yards further seaward.

For some years the author's firm has been engaged in constructing timber groynes on

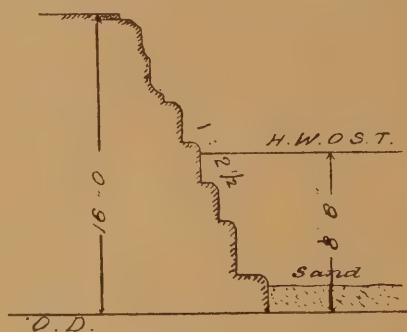


FIG. 7. MARGATE.

the south coast, particularly in Middleton parish, east of Bognor, and between Lancing and Shoreham, over a length of coast about two and a half miles. The coast line at the former place faces nearly due south, and at the latter S.E., and both are exposed to the full force of south-west gales. At Middleton the shore, for want of adequate protection, had become almost entirely denuded of shingle when the author took charge. The supply of drift is not large, as quantities are deposited and retained opposite Pagham Harbour, about six miles to the west, under the lee of Selsea Bill. The groynes erected in 1889 and 1890 have arrested a large quantity of sand and shingle, so that the property, part of which is below the level of high water spring tides, is now protected as far as the groynes extend. At Lancing there is a fair supply, as, except the Worthing groynes, practically there is little to intercept the drift between it and Middleton, a distance of about thirteen miles.

The general design of the groynes at these places is similar to those erected by Mr. R. Pickwell, although they differ in details. They are about 270ft. to 300ft. long, and from 400ft. to 500ft. apart. The height at the top

end is 8ft. above H.W.O.S.T., and at the lower end 10ft. below that level, or when first fixed, from 3ft. to 4ft. above the level of the shore. Similarly to a portion of the length of the coast with which Mr. Pickwell had to deal, the beach both at Middleton and Lancing forms a bank or ridge of shingle, which protects the low-lying land behind—in the case of Lancing about 600 acres. In storms these ridges were swept back, and the sea was encroaching opposite the village of Lancing at the average rate of about 18ft. per annum. The top of the ridge from Lancing to Shoreham for about two miles in length varied from 7ft. to 9ft. above H.W.O.S.T. In either case the expense of a sea-wall or any breastwork which would have also involved groynes was not to be thought of, as except opposite the village of Lancing, the land to be protected was agricultural.

The first set of groynes (see Figs. 8 and 11), 16 in number, between Lancing and Shoreham, was erected in 1876—1877. In addition to the groynes, a small shingle bank, the top of which was 3ft. wide and 10ft. above H.W.O.S.T., was formed from 30ft. to 50ft. back from the upper ends of the groynes along the top of the shingle ridge, to stop the run of the spent waves in strong gales. These groynes and bank have for the last twenty years entirely prevented further encroachment of the sea, which in 1876 seriously threatened the property. In 1892 the author's firm constructed a set of groynes further west, commencing at the west corner of the well-known gap in the road between Lancing and Worthing; and in the present year, the first set of the groynes having become worn out, they are being replaced by new ones. The width of the top of the shingle bank in the last two cases has been made 10ft. instead of 3ft. All these groynes are erected on the same principle, the direction of the old set pointing S.E. by S., and the new S.E. In this respect they differ essentially from the groynes built by Mr. Pickwell, and from the practice on other parts of the coast.

Seeing the conflict of opinion upon this point, the author may be permitted to advance some considerations respecting it. The view he holds is by no means new, but it has been tried and found successful.

The late Mr. John Thornhill Harrison, after much practical study of the subject of the motion of shingle, sand, &c., on the English coast, recorded in 1848 his opinion that "a groyne run out in a slanting direction from the prevailing winds appears the most favourable. The power of the prevailing waves to sweep out the shingle from behind the groyne and to carry it forward would be much diminished, and they could only act on the beach some little distance beyond the groyne. On the other hand, it would encourage the accumulation behind it of shingle driven by the waves from other quarters, whilst, as these impinged on the groyne on the outer side, they would exercise considerable power in carrying the shingle back."

In the following year Mr. Harrison emphasized this opinion, as follows:—"The run of the tides produced very little effect upon the beaches at Dawlish and Teignmouth. The waves were the chief cause of the shingle



FIG. 10. NEW ROMNEY LEVEL.

shifting, and as the south-west was the prevailing wind the waves raised by it drove the shingle along the coast to the eastward, causing an accumulation against the western side of the groyne, and, unless they were carefully placed, laying bare the eastern side to the foundation and causing a run along the wall or coast they were intended to protect. The direction of the groynes should be at a considerable angle to that of the prevailing winds, so as to allow the waves spreading out like a fan, and so depositing any shingle that might be carried with them."

Lieut.-Col. Gordon, R.E., in 1853, after ten years' observation of the coast at Eastbourne and Hythe, came to the conclusion that groynes ought not to be constructed perpendicular to or in immediate contact with the work they are intended to protect, but that they ought to be *en echelon* to the periodical high seas and winds; that is to say, the sea should strike upon and wash over a groyne in an oblique direction, with the obtuse angle formed by the groyne and the wave on the land side, so that the sea on its recession should leave the ejected sand and shingle on

stone wall is backed by an earth bank, which defends the low level of Romney Marsh from overflow by the sea. In 1894 Mr. Mathews and Sir Wolfe Barry reported on the state of the wall, which was then in a dangerous condition, and recommended the construction of a number of timber groynes along the frontage. From the bad condition of a considerable portion of the width of the lower portion of the pitched slope, Mr. Case removed a good deal of it, and temporarily constructed concrete steps, with a concrete toe a short distance down the slope. He subsequently erected long, low groynes on his system, commencing at the foot of the shortened slope, and adding to the height of the groynes as the sand accumulated. He thus raised the level of the foreshore in some places as much as 8ft., in this way quite protecting the pitched slope. When the author saw the shore it formed a fine stretch of sand.

There is no stone pitched slope or wall on the New Romney frontage (see Fig. 10), the beach of which has its top from 6ft. to 7ft. above H.W.O.S.T., sloping at an inclination of 1 in 9 down to a flat foreshore of sand having

The mode of construction of Mr. Case's groynes is fully described in the specification of the patent, and appears simple and inexpensive. The author has not yet seen this system applied to a coast exposed to the full force of gales from the prevailing quarter, but he agrees with Mr. Walmisley that the groynes should be carried up to the full of the beach, where there is no stone-pitched slope or wall to protect the frontage.

The points to which the author desires to invite especial attention are:—

1. The protection of the coast line is in most cases dependent on the sand and shingle that can be arrested and retained in front of it.
2. Groynes, unless there is a foundation of rock, are in most exposed places indispensable, whether there is a sea wall or not.
3. Where there is a sufficient supply of drift along any part of the coast, groynes alone, if properly planned, will prevent further encroachment without a sea wall or breast-work.

In support of the second point he has brought forward the examples of the frontages

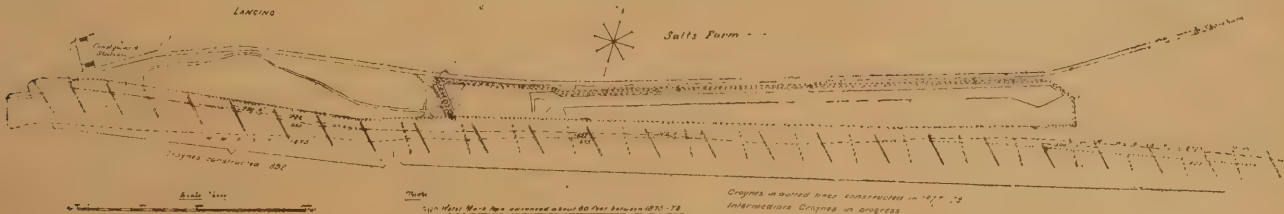


FIG. 11. LANCING.

the opposite side of the groyne. The diagram illustrating Lieut.-Col. Gordon's paper shows the direction to be an obtuse angle of about 103deg. with the S.W. wind.

As will be seen, the direction of the groynes at Middleton and Lancing has been laid consistently with the conclusions of these authorities. After twenty years' experience, the author is satisfied that groynes laid in such a direction are more effective in accumulating and retaining drift than those laid in any other.

Mr. Edward Case, A.M.I.C.E., has designed and patented a system of groynes differing in mode of application and detail from the examples already described, and has adopted them for the preservation of the Dymchurch wall, and of the frontage of the New Romney Level. The shore from Romney Hoy to Dymchurch trends to the north and north-east, and is under the lee of Dungeness, so that it is sheltered from the south-west gales. The wind which drives in the sea with the greatest effect on that shore comes from the south-east. Here only sand seems to be accumulating on the foreshore, the greater part of the shingle being intercepted by Dungeness. Mud has hitherto collected on the shore, and a deposit of mud is shown on the Admiralty chart close to the north point of Roar Bank at a depth of 2½ fathoms. From this circumstance it does not appear that strong currents prevail, nor that there can be so much scour along that part of the coast as at other points.

The Dymchurch wall has already been referred to, and its front slope described. The

an inclination of about 1 in 60. At the back of the beach there is a breadth of sand-hills, which, although the sea has encroached upon them at the rate of 8ft. per annum, prevent overflow on to the low land of Romney Level. On this foreshore a good deal of sand has already been accumulated by the eleven groynes put up by Mr. Case, each of them 420ft. long and 500ft. apart at right angles to the coast line.

It may be remarked that Mr. Case differs from other engineers not only in detail, but in commencing the upper ends of his groynes at the level of Ordnance Datum, or about 10ft. below H.W.O.S.T., or approximately at the foot of the steep slope of the beach where the flat foreshore begins, and extends as far out to low water as practicable—that is to say, he begins his groynes where, in most cases, they leave off. The upper part of the beach is therefore for the time left unprotected. The sand on the foreshore accumulates at the rate of about 2ft. per annum against the groynes, which are not raised more than two or three deals above the shore. In this way Mr. Case expects to gradually raise the foreshore for a long distance towards low water, and with it the level of the beach, and so diminish the depth of water and the power of the waves to scour and encroach.

Mr. A. T. Walmisley considers that groynes should be carried up to the top of the beach. He says: "It is very essential to the success of a groyne that the sea, not the beach, may wash over the top in rough weather, and that it be carried well up into the full of the beach."

of Brighton, Hastings and Seabrook, and no doubt others could be mentioned.

The third point he has illustrated by the examples on the Italian coast, at Withernsea, Middleton and Lancing, to which may be added the frontage of Worthing, which is entirely protected by groynes without a sea wall.

It is almost needless to say that the great hindrance to the adoption of any kind of effectual protection against the encroachment of the sea, except for residential property, is the cost. No frontage of agricultural land, except where a considerable area is below the level of high water, can bear the cost of any substantial form of defence hitherto devised. It is cheaper to sacrifice the land.

If Mr. Case's system admitted of general application much might be done which so far has not been possible. The cost of such defences falls entirely upon the owners of the frontage, the owners of the back land being content to wait till they in turn become liable. Manifestly the whole burden of liability ought not to be thrown upon the frontagers while other owners escape scot free, although it would be difficult to devise a graduated scale of rating to meet the case.

The question is a national one, and the Government is much interested in the matter. Coast-guards stations, as well as other works, are established every two miles or so along the coast, and the abandonment of the stations and their re-erection further inland owing to the encroachment of the sea are of constant occurrence.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 18	Bridlington—Erection of School	Governors	Botterill, Son, and Bilson, 23, Parliament-street, Hull.
" 18	Grimsby—Alterations to Premises	Councillor M. Abrahams	Mitchell, Son, and Co., 112, Cleethorpe-road, Grimsby.
" 18	South Bank, Yorks.—Additions to Police Station		W. Stead, County Surveyor, Northallerton.
" 18	Tunbridge Wells—Erection of Offices, &c.	Corporation	T. E. W. Mellor, Borough Surveyor, Tunbridge Wells.
" 20	Briton Ferry, Wales—Erection of Villa		H. A. Clarke, Architect, Briton Ferry, Wales.
" 20	Mynyddislwyn—Erection of Class-rooms, &c.	School Board	G. Rosser, Architect, Abercarn.
" 20	West Burton, Yorks.—Erection of Chapel, &c.		W. Lawson, West Burton, Yorks.
" 20	Tipperary—Erection of Two Schools, &c.		Rev. Dr. O'Neill, P.P., Lattin.
" 20	Bury, Lancs.—Retorts, Firebricks, &c.	Corporation	W. H. S. Gendall, Gas Engineer, Gasworks, Elton, Bury.
" 21	Barking, Essex—Erection of Electric Light Station	Urban District Council	C. J. Dawson, Council's Surveyor, Public Offices, Barking.
" 21	Enniskillen, Ireland—Erection of Dispensary House	Guardians	E. Wilson, Clerk, Board Room, Workhouse, Enniskillen.
" 22	Welshpool—School Room		— Powell, 19, Broad-street, Welshpool.
" 26	Buenos Ayres—Central Railway Station		Legation of Argentine Republic, London.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Dec. 28	Manchester—32 Two-story Tenement Buildings and 18 Cottages	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 28	Bideford—Post Office Repairs, &c.	Bridge Trustees	R. T. Hookway, Architect, Bideford.
" 28	Southampton—Construction of Public Convenience	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
" 29	Burnley—Extension of Electric Lighting Station		G. H. Pickles, Town Hall, Burnley.
" 31	Frinton-on-Sea—Erection of School	School Board	S. T. James, Architect, Frinton-on-Sea.
1898.			
Jan. 1	Copenhagen—Repairing Cemented Museum Walls	Corporation	F. Meldahl, Offices, Copenhagen.
" 1	Glanatant-isa, Wales—Constructing Abutments, &c.	County Council	R. L. Williams, County Surveyor, Denbigh.
" 13	Lewisham—Erection of Buildings	Guardians of St. Olave's Union	A. H. Newman, 31, Tooley-street, London Bridge, S.E.
No date.	Fairfield, Lancs.—Pair of Semi-detached Houses, &c.		J. H. Burton, 2, Guide-lane, Hooley-hill.
" "	Leeds—Slatting and Plastering Ten Houses		Barden-place, Conference-road, Whingate, Armley.
" "	Llandudno—Memorial Church		J. O. Scott, 35, Spring-gardens, London, S.W.
" "	London, E.—Alterations, &c., to Premises	S. Gulliver and Co.	W. Taylor and Son, Architects, Aylesbury.
" "	London, N.—Erection of Block of Flats		W. Stair, 9, Queen Victoria-street, E.C.
" "	London, N.—Erection of Fifty Cottages		Architect, c/o Fuller & Jackson, 11, Grocers' Hall-court, E.C.
" "	Oakworth, near Keighley—Erection of Warehouse		J. Judson & Moore, Architects, York-chambers, Keighley.
" "	Pontefract—Reconstruction of Licensed Premises	Brice, Butler, and Lee	Tennant and Bagley, Architects, Pontefract.
" "	Rochdale—Plastering Twenty Houses	N. Mutch	N. Mutch, Moss Cottage, Milnrow-road, Rochdale.
" "	Skegness—Erection of Chapel		H. Harper, 16, Roman-bank, Skegness.
" "	Worthing—Erection of Post Office Buildings		R. S. Hyde, Architect, Worthing.
" "	Harrogate—Extension of Printing Works		Whitehead and Smetham, Architects, Albert-st., Harrogate.
" "	Stockton—Steam Brickmaking Works	Eaglescliffe Road, Brick & Tile Co. Ltd.	J. Sanderson, 131, High-street, Stockton.
" "	Holbeck, Leeds—Rebuilding Inn		A. D. Kaye, 71, Albion-street, Leeds.
" "	St. Helens, Lancs.—Additions to Schools		F. S. Biram, Architect, Hardshaw-street, St. Helens.
" "	Clayton, Yorks.—Eleven Terrace Houses		S. Spencer, 344, Great Horton-road, Great Horton.
" "	Padstow, Cornwall—Erection of Hotel		Crickmay and Sons, 13, Victoria-street, S.W.
1897.			
ENGINEERING—			
Dec. 18	Kirkcaldy—Heating Memorial Halls		Dunn and Findlay, 35, Frederick-street, Edinburgh.
" 18	Cádiz, Spain—Construction of Canal, &c.		Direction General of Public Works, Madrid.
" 20	Bo'ness, Scotland—Constructing Reservoir, &c.	Police Commissioners	J. A. Leslie and Reed, 72A, George-street, Edinburgh.
" 20	Luxemburg—Railway Construction Works		Administration of Prinz Heinrich Eisenbahn, Luxemburg.
" 20	Canterbury—Electric Light Plant	Electric Lighting Committee	E. Hammond, Ormond House, Great Trinity-lane, E.C.
" 20	London, S.W.—Supply of Goods Waggon	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 21	Swinton, Yorks.—Sinking Well	Urban District Council	R. Fowler, Surveyor, Swinton, near Rotherham.
" 23	Workington—Heating Central Stores	District Industrial & Provident Soc. Ltd.	W. G. Scott and Co., Victoria-buildings, Workington.
" 28	London, N.W.—Arc Lighting Extensions	St. Pancras Vestry	Chief Clerk, Electricity Department, 57, Pratt-street, N.W.
" 28	Port Glasgow, Scotland—Waterworks	Commissioners	Leslie and Reid, 72A, George-street, Edinburgh.
" 30	Catanzaro, Italy—Tramway		Municipal Authorities, Catanzaro, Italy.
" 30	Criccieth, Wales—Construction of Sea Wall	Urban District Council	T. Roberts and Son, Portmadoc.
" 31	St. Gilles-lez-Bruxelles—Gasworks	Council	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway	Government	Central Directorate, Public Works, Porte Alegre.
" 31	Denbigh—Laying Water Mains, &c.	Asylum Visitors	Wood and Brodie, 3, Cook-street, Liverpool.
" 31	Belem, Brazil—Pumps, Boilers, &c.		Junta do Tesor de l'Etat de Para, Brazil.
" 31	Canterbury—Refuse Destructors	Corporation	City Surveyor, 28, St. Margaret's-street, Canterbury.
" 31	Foleshill—Water Tower, Pumping Station, &c.	Rural District Council	H. B. Nichols, 59, Corporation-street, Birmingham.
1898.			
Jan. 1	Lisbon—Construction of Canals		Department of Public Works, Lisbon, Portugal.
" 7	Dunmanway—Construction of Reservoirs	Guardians	F. J. Crowley, Clerk to Union, Dunmanway.
" 8	Ballyshannon, Ireland—Waterworks	Guardians	J. Perry, County Surveyor, Galway.
Jan. 9	Athens—Dock Extensions		Chancellerie of the Monarchie Attaque and Béotie, Athens.
" 10	Bootle, Lancs.—Electric Lighting Works	Corporation	J. H. Farmer, Town Clerk, Town Hall, Bootle.
" 11	Northallerton—Iron Bridge	Rural District Council	W. Fowler, Clerk, Council Offices, Northallerton.
Feb. 28	Pernambuco—Port Works	Government	Brazilian Embassy, London.
No date.	Llanwenarth Citra, Wales—Laying Water Pipes, &c.		A. Edwards, The Steps, Llanwenarth Citra.
" "	Londonthorpe, Grantham—Sinking Well		J. Hutchinson, Manthorpe Lodge, Grantham.
" "	Whitehaven—Driving Tunnel, &c.		W. Pitt, Manager, Whitehaven.
" "	Wetheral, Cumberland—Levelling Ground		S. J. Bell, Wetheral.
1897.			
IRON AND STEEL—			
Dec. 18	Hamilton, Scotland—Supplying Tools, &c.	District Committee	J. Clark, Road Surveyor, Hamilton.
" 20	Manorhamilton—Supply of Goods	Northern Counties Railway Company	R. E. Davis, Lurganboy, Manorhamilton.
" 28	Glasgow—Steel Tramway Rails	Corporation	J. Young, 88, Renfield-street, Glasgow.
" 29	Adelaide, South Australia—Steel Bars, &c.		Agent-General, Tender Board of Adelaide, London, E.C.
" 29	London, E.C.—Wrought and Firebar Iron	Bengal and North-Western Ry. Co. Ltd.	E. L. Marryat, 237, Gresham House, Old Broad-street, E.C.
" 31	Denbigh—Cast-iron Water-pipes	Asylum Visitors	Wood and Brodie, 3, Cook-street, Liverpool.
1898.			
Jan. 1	London, W.—Various Stores	St. George's, Hanover-square, Vestry	G. Livingstone, Surveyor, Parish Offices, 1, Pimlico-rd., W.
" 3	Dublin—Supply of Stores, &c.	United Tramways Company	Company's Office, 9, Upper Sackville-street, Dublin.
" 3	Shanklin—Cast-iron Socket Pipes	Urban District Council	F. Newman and Cocks, 5, St. Thomas-street, Ryde.
No date.	Tonbridge—Steel Foul Main, &c.	Gas Company	J. Donaldson, Engineer to Company, Tonbridge.
1897.			
PAINTING AND PLUMBING—			
Dec. 29	Llanerchymedd—Plumbing Work	Guardians	J. Owen, Architect, Menai Bridge.
1898.			
ROADS—			
Dec. 18	London, E.C.—Wood Paving	St. Luke's (Middlesex) Vestry	Surveyor, Vestry Hall, City Road, E.C.
" 20	Stockton-on-Tees—Street Works	Corporation	K. F. Campbell, Borough Engineer, Stockton-on-Tees.
" 21	Reading—Levelling, Paving, &c.	Sanitary Authority	J. Bowen, Borough Engineer, Town Hall, Reading.
" 21	New Barnet—Kerbing, Tarpaving, &c.	Urban District Council	H. York, Surveyor, Station-road, New Barnet.
" 21	Urmston, Lancs.—Paving, Flagging, &c.	Urban District Council	— Hooley, C.E., Council Offices, Urmston.
" 21	Catford—Kerbing, &c.	Lewisham Board of Works	Surveyor, Town Hall, Catford, S.E.
" 24	Horsham—Road Materials and Cartage	Roads and Bridges Committee	W. B. Purser, 31, Bedford-road, Horsham.
" 24	Horsham—Supply of Broken Granite	Roads and Bridges Committee	W. B. Purser, 31, Bedford-road, Horsham.
" 29	Tunbridge Wells—Sewering, Paving, &c.	Corporation	Borough Surveyor, Town Hall, Tunbridge Wells.
" 31	Walthamstow—Granite Kerb, Setts, &c.	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
1898.			
Jan. 1	London, W.—Removal of House Refuse, Supply of Granite, &c.	St. George's, Hanover-square, Vestry	P. Livingstone, Surveyor, 1, Pimlico-road, S.W.
" 3	Hornsey—Paving, Levelling, &c., Roads	Urban District Council	E. J. Lovegrove, Offices, Southwood-lane, Highgate, N.
1897.			
SANITARY—			
Dec. 19	Leeds—Construction of Lavatory and Conveniences		City Engineer, Municipal-buildings, Leeds.
" 21	Tottenham, N.—Brick, Concrete, and Pipe Sewers	Urban District Council	P. E. Murphy, 712, High-road, Tottenham, N.
" 24	Rugby—Construction of Outfall Sewer	Urban District Council	D. G. Macdonald, Engineer and Surveyor, Rugby.
1898.			
Jan. 1	Fenstanton—Construction of Sewer	St. Ives Rural District Council	G. D. Day, Clerk, The Broadway, St. Ives.
" 25	Lisbon—Sewerage and Drainage Works	Secretary of State	Commercial Department, Lisbon.
No date.	Audenshaw, Lancs.—Pipe Sewer	District Council	J. H. Burton, 2, Guide-lane, Hooley Hill.
1897.			
TIMBER—			
Dec. 21	Colchester—Supply of Yellow Deal, &c.		C. E. White, Clerk, Colchester.
1898.			
Jan. 3	Valmaseda, Spain—Sleepers, Four Locomotives, &c.		Municipal Authorities, Valmaseda, Spain.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 31	Bootle—Fire Brigade and Police Stations	£52 10s., £26 5s.	Corporation.
" 31	Altrincham—Plans for Offices	£20, £10	Urban District Council.
1898.			
Jan. 8	Belper—Water Supply Scheme	£15 15s., £5 5s.	Rural District Council



IN WESTMINSTER ABBEY.

ON Thursday last, the 16th inst., John Loughborough Pearson, "Surveyor of the Fabric," was buried in Westminster Abbey. What place could have been more fitly chosen for his last sleep? He had had the charge of the structure for many years. His best skill, his unwearying care, were ever at the service of our national fane. Repairs under his direction were even now in progress. Quietly and simply, without pomp or circumstance, as befitted one who in

Schubert; as the procession moved up the nave and choir, the opening sentences were chanted of the office for the burial of the dead. The choir filed right and left into the stalls, the clergy passed on to the high altar, while the body was deposited at the steps of the sacarium, with the pall-bearers and mourners on either side. After a psalm, the sub-dean advanced to the top of the steps and read the lesson, which was followed by an anthem. Then, while a hymn was being sung, the procession was re-formed, and the body carried to the grave, which was beside those of his brother artists, Barry, Scott, and Street. Here a group was formed round the open grave, while the sentences of the committal and the benediction were pronounced by the Dean. As the last words died away, and the Dean stood looking into the grave, the mournful strains of the Dead March rose and trembled through the building, and as it grew stronger and fuller, and then finally rang out its assurance of ultimate triumph, they turned away and left him, "in sure and certain hope," to the company of those who had gone before. It was his fate to encounter strong and often angry opposition to much of the work which he carried out

An Architectural Causerie.

"Cardiff" and
the Art of
Assessing.

THE only fault one has to find with one's predominant partner is that he is inclined to be a little too predominant. He has of late, in particular, been behaving in a riotous and overbearing manner upon the subject of the Cardiff competition awards. He even broke a palette in emphasising some of his extremely commonplace ideas upon the subject. All one did was to tell him he did not know what he was talking about, and that it was evident he was annoyed because younger men than himself had had it all their own way; and the predominant partner did not like it. He upset a bottle of ink, and inquired in a high key of indignation how he should come to have personal feelings when he had not even competed. From that he went on to complain of "the indecent haste" shown by the authorities, and grew pink with the intensity of his fervour and broke a second palette. One merely smiled, and reminded him that one



CORNER AT LISIEUX. DRAWN BY W. A. MELLON.

life had been simple and unassuming, the last office of the Church was performed in the presence of friends and colleagues. The architect's fame rests not on popular applause, "nor in broad rumour lies"; so here were no crowds of the curious, but just a few who knew him and respected him—brothers in Art, comrades of the Academy and the Institute, members of the Chapters of cathedrals under his charge, and of societies to which he belonged. The Dean of Peterborough, the Sub-dean of Lincoln, the Presidents of the Academy and the Institute, the Bishop of St. Andrews, and the Commissioner of Works under whom he added to Westminster Hall, were among those who bore the pall. As the body was received at the west cloister door by the clergy and choir, a voluntary was rendered from a mass by

at the cathedrals under his control. Rarely in our day does the clamour of controversy rise so loudly as it did over Peterborough. Never has any work of restoration met with so fierce a resistance, and now—while the din of conflicting passions and the echo of angry voices are still ringing in our ears—he has passed to where beyond these voices there is peace. By his open grave, nought can be remembered but the long life laboriously and faithfully spent in the service of his Art. Those most opposed to the policy which he carried out can join here in a common tribute of regret for our loss, and of respect for the sincerity of his character and convictions. To all of us, the memory of John-Loughborough Pearson is that of an accomplished architect and an honest man.

went shares in the palettes and the ink, and mentioned that his own violent exhibition of jealousy was distinctly the most indecent spectacle one had ever witnessed. The fact is that the predominant partner, though he does not like it to be mentioned, is getting on in years, and the Conservative inclinations of his youth are developing into the prejudices of the rabid Tory. Already he holds tenaciously to the old-fashioned notions upon all subjects, and persistently opposes anything that may appear to him to contradict them. Thus it is that he has altogether failed to realise what are the true vital qualities that distinguish and mark a capable assessor, although one has told him that the thing is now established beyond dispute. He still holds to the old hum-drum ideas, and not only denies that speed is the chief recom-

commendation of an assessor, but, in the heat of controversy, has committed himself so far as to declare that swiftness of decision has no part in the making of a just award, and he asserted further that the cases of the "lightning barber" and the "quick change artiste" were not analogous, and that their popularity did not imply the advocacy of a "lightning assessor." If one eliminates the expletives and outbursts of passion which disgraced the predominant partner's utterances upon the subject of "Cardiff," it would seem that he complains in chief of the distinguished and popular architect who acted as assessor in the late competition. He holds that even if long experience and a notorious ability have granted him such supreme mastery of the intricate questions of fitness as are involved in the plan and elevations of a large and important public building, so that he can, by a cursory glance, definitely decide the relative merits of the better part of a hundred designs, comprised in some six hundred sheets of drawings, and which have occupied some of the most brilliant of the younger men, and some of the best established authorities and specialists among the older, months to elaborate, at least, the predominant partner insists, the assessor's proper sense of modesty and courtesy should prompt him to remember the feelings and sensibilities of his brother professionals, and show him that the graceful and the becoming act (if not the obligatory), would be to throw a plausible glamour over the method of his assessment, such as would indicate a thoughtful and judicial survey of the designs and the exercise of a careful and nicely balanced judgment in the final placing of his awards. The predominant partner added some violent words to the effect that the Cardiff awards were settled by the chance of which side of his bed the assessor got out at in the morning. Of course, one told him that an assessor was a tried man of long experience, and that physical conditions had no effect whatever upon the brilliancy of his mind, which shone like a fixed star, and was necessarily undimmed by any indisposition which did not absolutely prostrate him. To one's surprise, one's predominant partner said "Bah!" He seemed so fixed to these entirely unreasonable views of his upon this subject, that one took some pains to explain things to him and set him right. One told him that he must bear in mind the dignity of the Profession; architects were willing to sacrifice petty feelings of their own as long as the dignity of the Profession was upheld, and that some of them took the trouble to graduate at one of the Universities, that they might uphold it by putting B.A. or M.A. on their notepaper. An assessor who assessed with dash and daring, and with possibly a smack of devil-may-care, and with a speed and brisk alacrity which advertised his complete confidence, provoked admiration in the mind of the British Town Councillor (who only knows about Architecture after the assessor's award is made), and thus raised the dignity of the Profession, and gratified other architects even though they might think the merits of their designs had not been fully appreciated. Then, again, one reminded him that an architect's assistant was indeed paid by time, but an architect or an assessor were paid by the job. That made all the difference. It was the assistant's art to take as long as possible, but an architect's and an assessor's business was to be quick. If an assistant could contrive to cut his finger as he sharpened his pencil he knew, while he bathed the injury, that all the time he was earning honest gold; but an architect or an assessor would be a fool and a bungler to do any such thing. It was therefore the whole art of the assessor to be as quick as possible, and the quicker he was the better assessor must he be. None could complain that the assessor of the Cardiff competition had not been quick enough. One told the

predominant partner with confidence that the record had been broken, though, of course, one only guessed it. There are several reports, but one will do all justice to Mr. Waterhouse and credit—that which states that the drawings were sent in on Saturday and opened on Monday; that the assessor viewed them on Tuesday and handed his report to the Town Clerk on Wednesday. On Friday, the result was in the London daily papers, and on that morning, the Western Mail published an elevation and plan of the accepted design. One invited one's predominant partner to say what more he could expect, considering how recent an innovation the general employment of an assessor was. He offered no remark, but continued industriously to collect our ink upon the table and conduct it back into the bottle with a funnel of paper. One concluded by anticipating that about the year 1950 the assessment would be a special proviso in the Profession, and each assessor a lightning one. The drawings would be arranged in a suitable gallery, the Town Council would meet, and at a specified hour, the assessor, just arrived by train, would be injected through a door into the gallery. Various reporters of the sporting and other dailies would be in attendance with stop-watches. After a few minutes, or possibly seconds, there would be a brief hail from the gallery, and at the signal the members of the Town Council would burst in to find the assessor in a state of physical collapse, but with the selected designs arranged before him upon the table, and his report written. One pressed this picture upon one's predominant partner; but, to one's surprise, he only repeated his previous ejaculation of "Bah!" B. C.

No one would recognise Lilong now. Of late he has grown stout, and, as he walks from his lately acquired suburban residence to the wayside station, you feel that the trim trousers have but shortly left their stretching frame, and that the creases faintly seen in his well brushed coat are but symbols of nightly foldings sanctified by custom. This morning he is more than usually cheerful, and a flower dons his button-hole. Yesterday he was instructed by the Vestry to prepare plans and specifications for the new Swimming Baths, and to-day he is hurrying to his city office to insert an advertisement in this week's building papers for a draughtsman well versed in bath work, and to inform his third man that his services will hardly be required after next week, the foundation stones of the new chapel having been laid by the Mayor of Soutperton some three weeks ago. Much business has brought a brusqueness into his once gentle voice, for he circulates in the city whirlpool—a shuttlecock sent hither and thither by unseen forces as strong as that which sets the weathercock in motion. That is Lilong now. And yet it seems but a short time ago that he occupied an office on the third floor in Bedford Street, when every enthusiastic youth that gathered round his hospitable board imagined that Lilong in the near future would be numbered among the Master Builders. But, alas! How are the mighty fallen! To-day he is a well established but crusty city architect, in league with speculative builders and such like, good at driving a bargain, and overworking his underpaid assistants. No one hears any discourses now upon the "great ideas" that seized him about planning, nor do you find upon his drawing board, as of old, any schemes for a pier with new methods, perhaps, of driving in the piles. He was very interesting, and in those days his cool and impartial attitude of mind enabled him to approach his work from almost any stand-

point. Languid and indifferent, as he seemed, he could, when necessary, bring to his task a fierce and furious energy that surprised even his most intimate friends, and caused his enemies to view with apprehension the use of a quality they little suspected to exist. Lilong in his most popular period had his enemies, a strong desire to take an impersonal view of questions at issue, combined with a hatred of thought and emotion, bordering on the maudlin, made him disliked by the superficial and sentimentally inclined. He objected to weeping with Sterne and those like him over dead asses, and few can forgive their best friend who forgets to weep over the favourite but dead ass. He would prefer to assist a young and budding architect to find his footing than to put his hand in his pocket to help a dilapidated draughtsman never likely to retrieve his fortunes. His chambers in Bedford Street was a meeting ground for many aspirants to architectural fame. Here was one who came to talk of his failures, and anathematise those who unwittingly overlooked him; here another, silent but observant, whose reputation was based upon the things he left unsaid rather than by any remarks he let fall from time to time; others there were and plenty; and then the long and slim host. Who that knew him can forget his oratorical flights, his real and unfailing kindness of heart, and his ready resource in making visitors at ease? Picture him for a moment, in his shoes that were always a size too large for him, moving about the room next the office—one moment assisting his "friends" to tea or cake, the next hovering over his office drawing board in search of a paper, chipping in from round the edge of the office door with some pertinent remark on the dockers' struggle, or striking in with a few bars of some old music hall song, rendered like a humming-bird. He was no modern Don Quixote tilting at windmills, nor could he be described as a "dreamer of dreams," but why does he now sit in his city office twiddling his watch-chain, the apotheosis of common sense and the commonplace? In justice to him let it be said that the drains of the houses he builds seldom go wrong, nor does the rain come through the roof. This is as it should be, for he has become a practical man, but dull—very dull. G. LL M.

THE ARC DE TRIOMPHE.

LIKE the Pont Neuf, some years ago, that magnificent memorial of Napoleonic glory, the Arc de Triomphe, has been sadly vilified. There has been some stir in the French capital of late regarding the condition of the famous archway, which is so dear to all Frenchmen, and which is a source of attraction as a monument to all visitors to Paris. It was rumoured that it was crumbling to pieces, that it might fall in at any time and cause a crash, the noise of which would be heard all over Paris. The great arch was said to have been rendered perfectly rotten by the rain and the storms of years, and a thorough restoration of the monuments was called for. Though there was some ground for directing the attention of the authorities to the historic relic, it now transpires that much of the rumour was utter exaggeration, and there is no fear among experts that the Arc de Triomphe lacks solidity. It lifts its front as proudly as ever in the dark December skies, and it will continue to do so for centuries to come. It has had to be repaired, like all other Paris monuments, and it is true that one of the arches was in a bad way owing to the infiltration of water. That damage has been remedied by the application of fresh concrete to the affected parts, and by the collocation of slabs on the upper part of the memorial over the vitiated vaulting. The works of restoration have not yet terminated, but nearly all the scaffolding has been removed, and the only woodwork remaining is that necessary for the slabbing operations.

CARDIFF COMPETITION.

NEW TOWN HALL AND LAW COURTS.

SINCE the competition for the Sheffield Town Hall, no open competition has evoked so much interest in the Profession as the one at Cardiff, just adjudicated on by Mr. Waterhouse, R.A.

The magnitude of the scheme and the fairness of the conditions would perhaps have procured an even greater response on the part of architects were it not for the unusually short time allowed competitors to prepare designs. As it is, several well-known architects who might have been expected to compete have been unable to send in designs.

The proposed site, Cathay's Park (which is to be sold by the Marquis of Bute to the Corporation), is divided by a double avenue of trees into two portions: the smaller to the west of the avenue, and bounded by the North Road; the eastern, or larger portion, bounded by Park Place.

From Park Place to the North Road a new road was suggested, and frontage lines were laid down, that for the Law Courts having a maximum width of 200ft., and that for the Town Hall, 450ft.

The conditions stated that the police courts and station were to be entered from the North Road, the Assize Courts and Town Hall naturally fronting on the projected road. It was suggested that the assembly, reception hall, and council chamber should be arranged *en suite*.

The great majority of competitors have naturally assumed that the principal front of the Town Hall should be the largest one, and should be placed in the centre of the 450ft. allotted. With very few exceptions they have also assumed that the suggestion as to the council chamber, reception and assembly rooms should be taken as indicating the lines on which the buildings were to be planned.

In the winning design—by Messrs. Lanchester, Stewart, and Rickards—the Town Hall is kept to the western side of the space allotted next the avenue, with a long front to the latter and a frontage of only 250ft. to the avenue, and the principal front of the Law Courts is placed along the avenue. The *en suite* arrangement of the State rooms of the Town Hall is also abandoned.

There is a somewhat natural feeling that these points should have disqualified the design, but apart from that point it must be admitted that the plan of the Town Hall is an exceedingly able one, every part of the building being well lighted, the offices well and conveniently grouped, the approaches to the assembly-room excellent as to entrances and exits. The fact that both the reception and assembly halls are lighted into courtyards, and that the council chamber is the only relief in external elevation to an immense range of two-storied offices, are weak points in the design, and, architecturally, the fact that there is no single State staircase is a blemish.

The arrangement of lavatories and cloak-room accommodation, and the position of council, waiting, and private members' rooms, seem specially well considered.

(Our illustrations of the premiated designs in connection with the Cardiff Competition will be concluded in our next issue.)

The large Rates office is situated under the assembly hall, and is approached from each side and from the main hall.

A sub-basement at the north end contains the strong rooms and Weights and Measures department, but otherwise the building is two-storied.

If it be not a radical mistake to put law courts on a first floor, the winning design is generally well planned. Exception must, however, be taken to the converging staircases leading from the Assize Courts to a small and cramped hall, from which there is but one exit. The arrangement of the first floor is, however, admirable. The hall is well placed, and the witnesses' and barristers'

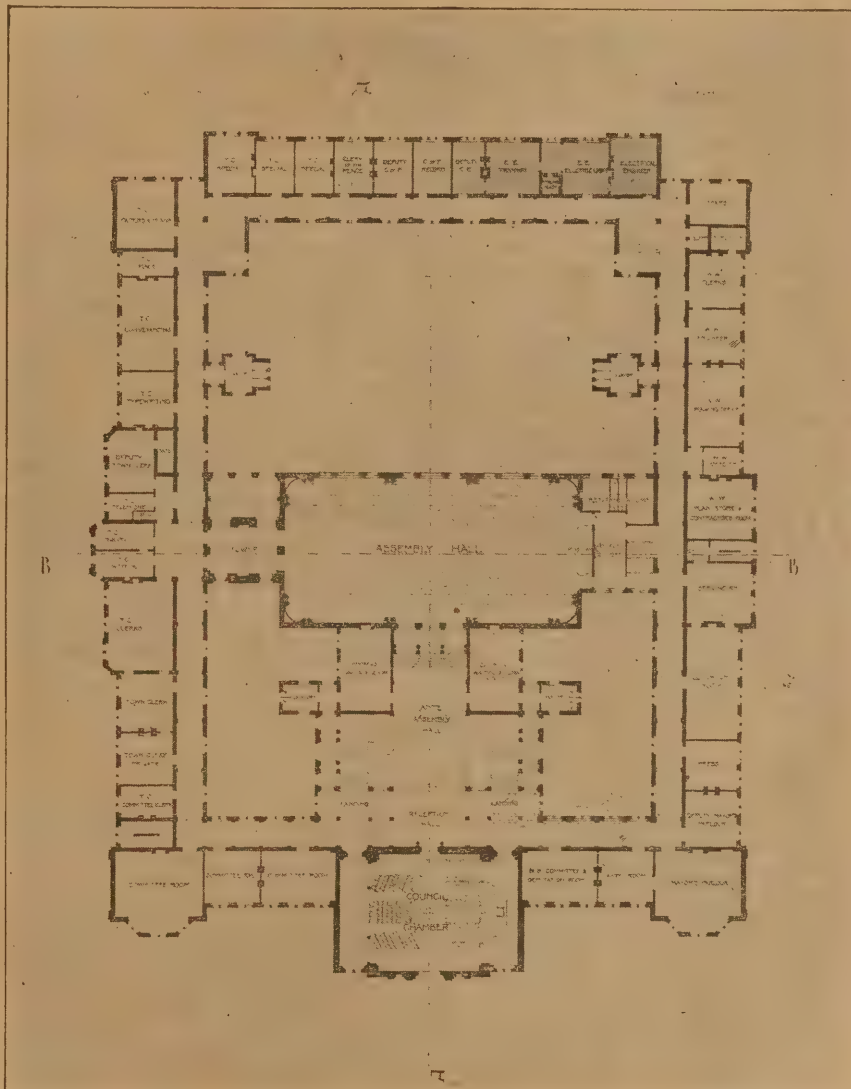
treatment generally is of a simple English Classic character.

The authors cube their Town Hall at 11d. and the Law Courts at 10½d.

The second premiated design, that of Messrs. Gibson and Russell, is illustrated by the most striking set of drawings in the room, the sections and detail being beautifully finished in colour.

The authors have been unusually successful in compressing their cubic contents, 11½d. a foot being provided for the Town Hall and 11d. a foot for the Law Courts, whereas Messrs. Leeming and Leeming cube their Town Hall at 9d. and Law Courts at 7d.

The type of plan followed by Messrs.



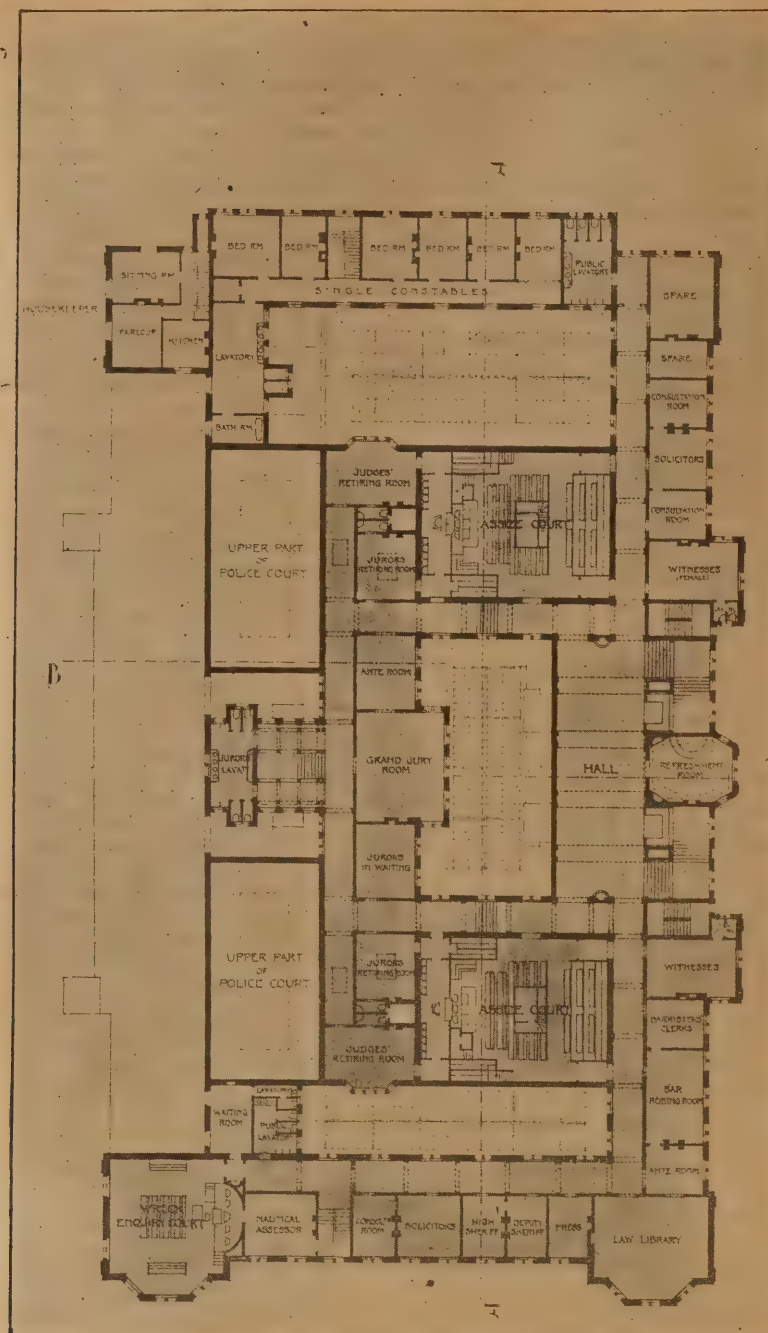
CARDIFF COMPETITION. FIRST FLOOR PLAN OF TOWN HALL. BY MESSRS. LANCHESTER, STEWART, AND RICKARDS.

rooms conveniently and well arranged. The judges' and magistrates' entrance from the western front is very suitably arranged, as are also the Police Courts, with the exception that the consulting rooms for the Bar and solicitors are placed at the end of one police court, instead of centrally between them. In the police station the principal fault to be found is that the parade room is partly underneath one of the courts.

The elevational treatment of both buildings seems somewhat commonplace, which is, however, in some measure doubtless due to hurried drawing. The squat dome over the council chamber is especially objectionable, and the tower needs a complete remodelling. The

Gibson and Russell, Milner and Allen, Leeming and Leeming, and several others is almost similar—that of a double quadrangle, the longer front being along the frontage line, the grand staircase occupying part of the central block and the three principal rooms *en suite*, and facing the south with the various offices round the three remaining sides and under the broad front block. There can be little doubt that this plan is the most logical outcome of the conditions; this cannot be said of the first premiated design.

Its inevitably weak point is the difficulty of effectively lighting the broad front block, and this must be the point which mainly influenced Mr. Waterhouse to making his award.



CARDIFF COMPETITION. FIRST FLOOR PLAN OF LAW COURTS. BY MESSRS. LANCHESTER, STEWART, AND RICKARDS.

Messrs. Gibson and Russell have split up several of the larger departments in an unsatisfactory way, otherwise their plan is ably worked out and the rooms well arranged.

The arrangement of small octagonal halls at the angles of main corridors is very effective. Messrs. Milner and Allen also make a similar feature, but in their design the halls communicate with four octagonal staircases which, with the grand staircase, give access to the various floors.

Messrs. Gibson and Russell place their three secondary staircases opposite the centre of the east and west wings flanked by lavatory blocks, while the third staircase is similarly placed back to back to the grand staircase.

With the exception of the defective lighting of the front block (a point which Messrs. Milner and Allen have partly obviated by placing the large rates office on one side of the main entrance), Messrs. Gibson and Russell's design is, we consider, better than the first premiated design, and has more architectural possibilities in it.

The Law Courts block is well and compactly arranged, but in this case the Police and Wreck Enquiry Courts are placed on a first floor, and the Assize Courts on the ground level.

Facing the south is a large hall, in front of which are a low range of consultation and witnesses' rooms, flanked by low towers containing stairs up to public galleries at either end. Immediately facing the main entrance stretches a broad hall corridor with the Assize Courts on either side. This is crossed by the judges' and magistrates' corridor, beyond which are similarly placed the two police courts. A broad corridor running across from east to west, flanked by staircases, give public access to the police courts, the entrance to one of which, being from the avenue, is contrary to the conditions laid down. On the north side of the corridor are the rooms for solicitors and witnesses, beyond which is an area which forms on the lower level a glass-roofed parade room. The housekeeper's and single constables' quarters are arranged in a block next

the parade room. Outside the two police courts are narrow areas for light, and secondary corridors with which the wreck enquiry and police rooms open. The refreshment room, law library, and other rooms are similarly placed with respect to the Assize Courts. The lower floor is well arranged, though the row of cells looking over or into the parade room may be objected to.

The architectural treatment of both buildings is somewhat similar to the author's West Ham design, but is far more picturesque and better handled. It is, however, somewhat lacking in dignity and restraint.

The halls and staircase of the Town Hall are lined with marble slabs, the great rounded end of the grand staircase being lit by a range of small openings separated by shafts.

The treatment of the assembly-room is rich in the extreme. The walls are divided into bays by stone columns having high dies, while the intervening spaces are panelled up to two-thirds of their height. A barrel ceiling surmounts the whole with flat panels at the sides and columned posts resting on broad tiebeams. The design of the main or southern front loses in dignity, being treated as a two-story block with a double range of windows.

The third premiated design—by Messrs. Cooksey and Cox—evidently owes its position to the planning of the Town Hall, as that of the Law Courts is bad in many ways, and has certainly little to recommend it in any way.

The plan of the Town Hall is, however, an excellent one, and utterly unlike any other in the room.

Flanking the central entrance, from which access is obtained to the state rooms, are two carriage ways leading to an internal court, round three sides of which are disposed the offices, entered at the two internal angles of the quadrangle. By this arrangement the whole of the state rooms can be cut off from the rest of the building, and the entrances can all be controlled with great ease. The elevations of both Town Hall and Law Courts are treated in a very happy manner, the style adopted being reminiscent of Wren.

(To be continued.)

THE Dean and Chapter of Truro have agreed to the proposal that the memorial to the late Archbishop Benson, by those who were ordained by him, should take the form of a brass in the Cathedral.

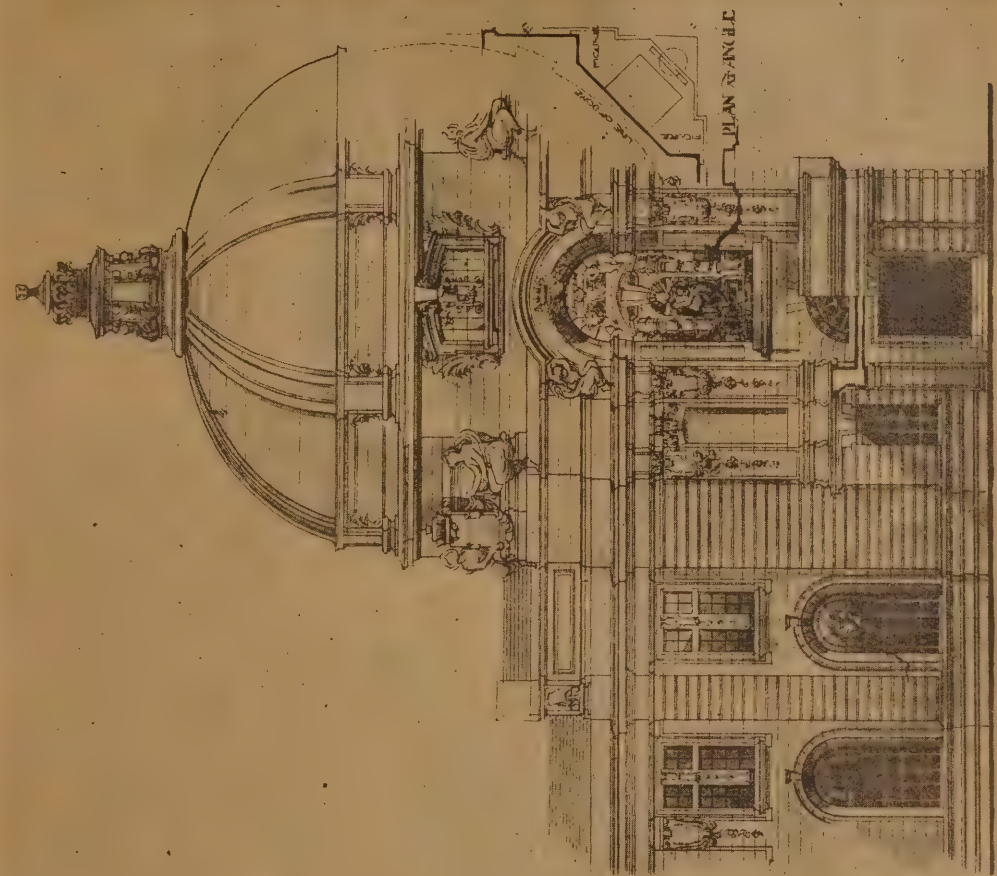
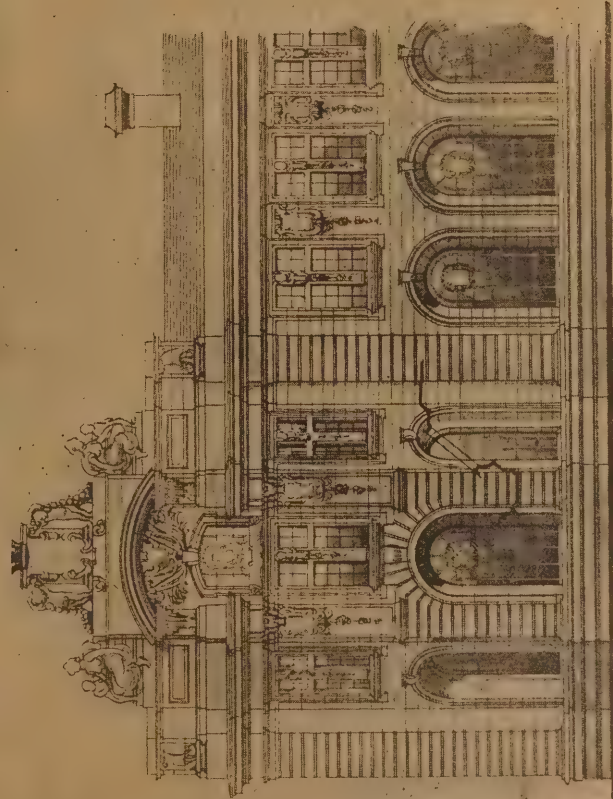
A BUST of the late Sir Charles Hallé has been presented to the Manchester Art Gallery Committee of the City Council by Sir W. H. Houldsworth, Bart., M.P., on behalf of the subscribers to the Sir Charles Hallé Memorial Fund. The bust, which is of white marble, is the work of Mr. Onslow Ford, R.A.

The acquisition of property in connection with the Blackwall Tunnel scheme cost £357,520 and the works £955,000. There has also been £70,570 expended on workmen's dwellings, for which the London County Council hopes to get some recoupment. The total approximate cost of the tunnel is therefore £1,383,490.

MR. DOUGLAS COCKERELL informs us that he is forming classes for the teaching of book-binding at 6, Denmark Street, Charing Cross Road. Each class will consist of not more than six pupils, and will meet twice a week for two hours. The tools and appliances, but not the material, will be provided by Mr. Cockerell.

THE Wesleyan Chapel Committee has agreed to sanction the erection of five new chapels and the purchase of a sixth, providing sitting accommodation for nearly 2000 persons, at a cost of over £11,000. The new chapels are to be built at Fleet, Portland, Fortune's Well, Sheffield, Westbourne, Bournemouth, and Ballaugh New (Isle of Man).

NEW TOWN HALL AND
LAW COURTS, CARDIFF.



CARDIFF TOWN HALL AND LAW COURTS COMPETITION. DETAIL OF PORTION OF FRONT. BY MESSRS. LANCHESTER, STEWART, AND RICKARDS.

HALF TIMBER WORK.

BY W. A. MELLON.

(Continued from page 405.)

DEALING first with The Oaks at West Bromwich, the timbers here present quite as much surface as the plaster; and their strong vertical lines, broken only by the door and window openings, give a very decided character to the design—a character which recalls very strongly, however, a point to which reference has already been made, namely, the use of carved braces. The eye, in reviewing this elevation, finds actual relief from the monotony of vertical lines in resting upon the porch with its simple, open curves. The picturesquely ornamented tower breaking boldly through the roof also gives a unique interest to the design, and helps materially to take away any feeling of flatness. The peculiar arrangement of struts in this latter is reminiscent of Japanese work.

Trewern Hall is a design of a totally different stamp, and, while it may not rank in importance as a building with the previous example, it is certainly not second to it in point of interest. Of the four gables in this front no two are alike, and, judging from its general appearance, it would appear that when the house was begun nothing was matured excepting, perhaps, the plan. The design of each part seems to have been influenced by the material at the workmen's service at the time. Every stick in the building is purpose-like, and the distribution of timber and plaster is very effective indeed. While the picturesque effect of the whole may have been quite accidental, it is an accident of which the modern intelligent workman would never on any account be guilty. The artistic value of a happy use of quartering as here exemplified is also worthy of notice.

The general view of Moreton Hall is of mixed merits. While it possesses the ground-work of a very telling composition, and is, indeed, even as it stands, a very striking group, yet the disposition of timber and plaster is not so good. There are two features in particular which may be pointed out as showing how a good idea may be pushed to extremes and overdone. The first is the use of raking struts in a gable. These standing alone divorce the upper part of the gable from the lower, and utterly destroy any feeling of natural growth, ill compensated for in any constructive appearance gained. The disagreeable effect may be lessened by the judicious introduction of one or two horizontal or vertical members. But if the first feature is disagreeable, the second is exasperating. This is the constant repetition of braces round the junction of the vertical and horizontal timbers. It has a bull's-eye effect—the reverse of restful or soothing, and, it may be fancied, particularly aggravating to bovine instincts. That these two features, if carried out in moderation, may be rendered very pleasing is



FRENCH BARGEBOARDS. BEAUVAIS (TRUSSED).

fully borne out by the gable in the courtyard, wherein they are both introduced.

The illustration of a small portion of Gainsboro' Old Hall shows a very delightful piece of timber framing, the happy effect of well contrasted straight and curved lines being fully brought out. The exterior projecting staircase shown here was a common feature in the tenements of ancient London, where it stood out on the pavement, and, running up the full height of the building, formed a very bold and striking feature in the vista. This building, as well as The Oaks, West Bromwich, is partly of brick, and, in passing, attention might be called to the many very harmonious combinations of brick and timber work exhibited by numerous examples of later date. Bricks as a building material were making general headway during the seventeenth century, compensating for the ever-decreasing supply of timber, and the happy blending of the two materials is particularly worthy of attention.

There is one feature in which the workers in this style have, perhaps, failed to maintain their high standard, namely, their oriels. These do not in many cases seem to fit in and combine well with their surroundings. There are many better examples in Elizabethan work, and best of all are those set in plain plastered gables, and of which the Butter Market, Dartmouth, presents a very good example. The richness of the carving is here rendered all the more striking by the reticence observed

in the broad plain surface as background, and the extremely simple projecting bargeboard.

The timber Architecture of France and Germany differs from that of England only in the characteristic details naturally following upon a distinctly separate growth. Timber was much used in France during the fourteenth century, and there are found many beautiful examples, although few country houses were erected owing to the troubled state of the country. The chief difference from English work results from the length and straightness of the timber available. The examples illustrated present normal street fronts, the St. Andrew's Cross in the quarterings of the houses at Lisieux being a constantly recurring feature. An important feature not found in English work is the trussed bargeboard framed up of different timbers of moderate scantling. This was very common in France, and sometimes one bay of the actual roof timbers was exposed on the exterior. The use of dormers was also developed to a wonderful extent. While in a small building they may destroy all feeling of breadth and repose, they have a picturesque beauty of their own; and the low broad windows nestling under the eaves that they supplanted, while perhaps equally interesting, must have been sadly inefficient for lighting purposes. Whereas in England the timbers were always painted for their preservation, in France, at any early date, they were in many cases protected by means of small slates, and probably this was the origin of the slated dormers and slated gables which are so common—a very quaint and effective treatment. There also existed on some parts of the Continent an ancient custom of painting the houses in gay colours. This custom, while very suitable for warmer climes, where sunny skies and a bright atmosphere tone down the gaudiest colours, could not meet with any great measure of success in such a dull climate as the English, which, instead of being enlivened thereby, would only have its dullness rendered more emphatic. There is usually a want of softness about the simpler specimens of foreign work, resulting from the absence of the curved lines of oak-built houses, the use of straight wood only carrying with it a certain stiffness and formality. There is another class of street Architecture on the Continent which in point of richness vies with the English Elizabethan. The main timbers are elaborately carved, and the interstices filled in with carved wood panels, sometimes with niches for plaster figures, the whole elevation presenting no plain wall surface whatever. This style of finishing may possibly harmonise and contrast



ABBEVILLE



(TRANSITIONAL)

FRENCH BARGEBOARDS.



BUTTER MARKET, DARTMOUTH. FROM A WASH DRAWING BY W. A. MELLON.

well with the surroundings, but, taken by itself, the amount of rich detail defeats its own object, and the building becomes more curious than pleasing. This style of work is common at Hildesheim and Nuremberg. The latter place has for many centuries been famous for its sculptors in wood. These are said to have been introduced into England, in which, at one period, wood carving flourished to such an extent that even the village stocks and ducking stool were so decorated. Home talent, however, was not wanting, and the Adams in the modelling of their work requisitioned the services of carvers from Edinburgh, which is said to have produced some very good men.

The timber Architecture of Switzerland differs radically from that which has just been dealt with—the French or English influence failing to reach there—and adapts itself to the conditions peculiar to the country. Pine being the material used, the lines of the buildings are long and unbroken, and the exterior covering being entirely of wood, very broad surfaces are obtained. The eaves are projected to an extraordinary extent to ward off the snow, and the brackets thrown out to support these form a very striking feature. The doors are placed high in the wall, and are reached by outside stairs. With the exception of the base, which is of stone, the material used is wholly timber.

Having glanced thus briefly over the subject, the question naturally arises "Of what practical use to anyone can be the study of an obsolete mode of building;" for though still a serviceable mode of construction, which may be used with much advantage in out-of-the-way country districts, it is only in rare instances, and in such towns as Chester that really genuine timber houses of any magnitude, and constructed on traditional lines, can be erected. Architectural history, however, presents many parallels, and at the present day a style practically discarded for generations has again come to be copied simply for the sake of its intrinsic beauty, and applied as a veneer to buildings to which it has no genuine or truthful application. The very fact of present day half-timber work being a sham, may, with some, preclude its use altogether. There is no reason why a wall should not receive on the outside as well as inside a coating of some better material, so long as such does not belie its true construction; but when to a stone or brick wall is imparted a false appearance of timber construction, the analogy of Nature is altogether departed from. At the present day, however,

the teachings of Nature are at a discount, and if sham timber work is an evil, it often hides a greater—bad brickwork. The spirit of the age condones such trifles, and it may be argued in its favour that the system is justified in its picturesque results and cheapness. In England, however, a wider and more legitimate field is offered in the use of brickwork, stone dressings, and rough cast, and in Scotland, possessing as it does a beautiful and characteristic domestic style of its own, and one capable of great development, the use of half timber so called savours almost of affectation, and cannot fail in course of time to be discarded as a craze. An indiscriminating client, however, wants his Architecture like his bicycle—up to date—and if his fancy lights on half timber, one cannot do better than observe the points that make or mar a design, and to a few of which, in addition to those that may already have been mentioned, reference may now be made.

(1.) The Barge board.—This may be moulded or carved. If simply moulded with a dentil or other enrichment as taste dictates, the success and character of the board will greatly depend upon the manner in which the ends are finished. If carved, it is better not to cut the edges, but to keep them continuous, and treat the ornament as enclosed, preferably geometric, or towards the same end cusps may be cut on the edges, and a continuous fillet planted thereon the whole length of the board. The board thus retains its fundamental meaning, and the treatment is more appropriate to its position. It may be said that instead of protecting the walls, the carved barge board itself requires protection, but this objection is perhaps more fancied than real. The barge should not continue down and cover the eaves, because if these are of any great projection it would thus gain a heavy appearance. There exists at the present day a prejudice against carved barge boards, for which, perhaps, bad modern work is to some extent accountable, but if well designed and executed they form a very charming feature.

(2.) The Finish of Post and Plaster.—It is customary nowadays to project the timber, or facing as it really is, $\frac{1}{2}$ in. or so beyond the face of the plaster. This may afford a better key for the latter than if they were finished flush, but the latter mode offers a much better appearance. It is almost universally so treated in old work, and in any exceptions there are the edges of the timbers are moulded.

(3.) Waterproofing.—Where walls are harled the interior brickwork does not receive the usual keying with cement, and as the

harling is not impervious to moisture, there is but little protection against damp. The bricks should, therefore, on the most exposed sides at least, be laid in cement. This treatment renders unnecessary an air space in the walls, the bricks being in addition a bad conductor of heat.

(4.) The Use of Curved Braces and Finishing of Timber.—This is a very important point, more so, perhaps, than any other requiring to be dealt with. The charm of old English work consists largely in the naturally twisted outlines and roughness of the oak. Nowadays, perhaps, the best thing that can be done is to fashion the curves artificially, depending for good effect upon the sweetness of the lines; and, while one cannot hope thus to gain the picturesque ruggedness of the old work, yet a certain trimness is imparted to the building which is not to be despised. But the modern architect carries this trim feeling a little too far when he planes the surface of the timber as smooth as possible, forgetting that he is dealing with carpentry work, and intensifying the feeling of tameness. Too often, likewise, a coat of body colour is applied in more or less bad taste, the total result being a mere caricature of old work. These faults suggest themselves the remedy. The timber should be placed in position fresh from the saw, or, still better, off the adze, and, if they are stained and oiled to preserve them, and yet show off the natural grain of the wood, a feeling of life is imparted which is of immense value to the design. In this connection mention might also be made of the wood fastening pins at the junction of the timbers. In old examples the heads of these are always left projecting half-an-inch, and, simple as such a matter may seem, they have quite a wonderful effect in the interest they give to the wall surface.

(5.) The Use of Modelled Plaster.—This is capable of great development, and, as a treatment of the triangular part of the gable, it is very appropriate. If treated in two tints, the effect is very good, and the variety of design is, of course, only limited by the skill of the designer.

In half timber, as in all else, the most difficult thing is self restraint. The old houses exhibit many quaint features, but such quaintnesses are in the main the outcome of necessity, for in a new style men plan primarily for convenience and utility, and these characteristic little bits crop up quite naturally and accidentally; although, of course, it is not to be supposed for a moment that the architects overlooked or set aside any opportunity, when such offered, of making any feature more interesting. The modern architect, however, too often mistakes these quaint bits for the design itself, and makes his plan to suit the introduction of as many of them as possible, the inevitable consequence being a feeling of straining after effect.

In closing, reference might be made to the cheap sneers that have from some quarters been launched at the bulging walls and billowy floors of old timber houses. Where such is the case, the faults usually result from the main timbers having been carried down into the soil instead of being carried on a stone base, and, as the inevitable decay from damp set in, unequal settlement took place, resulting in the well-known picturesque exterior, and, needless to remark, equally inconvenient interior. With all its vagaries, however, one can afford to look with sympathetic eyes upon work which has stood the test of centuries, nor should such examples as Moreton Hall and Bramhall Hall, whose solidity and strength have preserved them nearly perfect to the present day, be overlooked. These were the productions of them who built for posterity. Their living representative, the modern architect, in collaboration with the modern carpenter, does not build for posterity, for which posterity will, no doubt, be duly thankful.

The study of old domestic work is extremely interesting, not only for its own sake from a technical point of view, but also from the amount of casual information one comes by in pursuing it. Many sketches of old queer characters are bound up insolubly with the quaint houses and streets of the picturesque old towns.



OLD HALL, GAINSBORO. DRAWN BY W. A. MELLON.

ART IN CHURCHES.

BY SIR WILLIAM RICHMOND, R.A.

IN the course of an address on decorative Art in church ornamentation, delivered at the annual meeting of the Clergy and Artists' Association, Sir William Richmond said the new movement was most interesting, and might become very useful. It was, of course, impossible to avoid a certain commercial element in an institution of the kind, but the tendency of all things in England was to drop down into pure commercialism with a rapidity that was perfectly appalling, and that should be guarded against. Many people supposed that in ecclesiastical Art Englishmen were always inferior to Continental artists; but one had only to glance at the specimens of work in the books of miniature painting—the Bodleian Library, at Oxford—or at the sculpture in the cathedrals at Ely, Exeter, Lincoln, or Wells, to see there

subject. Then, again, bad drawing was not necessarily devotional. Why was it necessary to make a man or a woman, because they were supposed to be exceptionally good, to look exceptionally silly or weak? There was a large class of people who supposed that a pious picture, or a pious window or reredos must have a certain mawkish sentimentality about it. He sincerely desired that the Association should do what it could to secure that Art in churches would be in the best sense manly, and also modern. They should choose subjects from the history of their own time. There was no period when we knew more of the heroism of Englishmen than at present. There was an instance the other day at Margate of magnificent self-sacrifice which required on the part of the men manning the lifeboat as high courage as that which induced the ancient Christians to go into the arena. Why should not a subject like that be chosen for a picture on the walls of a cathedral or church? He did not say that that particular incident should be chosen, but there were no

"ANTIQUITIES."

A DECISION IN ROME.

AN important decision, regarding the export duties laid on such articles of commerce as fall under the very vague and elastic heading of "antiquities," has just been rendered by the Court of Appeals in Rome. As is known to all who have attempted to purchase such articles at Rome, the export duty of 20 per cent. levied on them by a law which is an inheritance from the Papal Government, is not only a grave charge, but one which is sometimes embarrassing to determine, the value of such things being purely fantastic. The law, known as the Pacea edict, applies only to the late Papal territory, each one of the ancient realms of Italy having still its ancient regulation, the duty from Tuscany being 1 per cent., and that from the former Austrian possessions nil. The Roman Court has decided that it only applies to such objects as are recognised as "precious"—i.e., as of exceptional artistic



TREWEEN HALL, MONTGOMERYSHIRE. DRAWN BY W. A. MELLON.

Art of a standard that is still unequalled. The churches of England were originally painted and ornamented with frescoes even more than the Italian churches. The Reformation, however, not only stopped all progress in this direction, but it destroyed what had already been collected during centuries of labour. The Oxford Movement taught people that religion had something to say to Art, and Art something to say to religion, and it led to the Gothic revival which was led by Pugin and Barry. The School of Design at South Kensington had also given the movement some encouragement, though not sufficient as regards the carrying out of the designs. Unfortunately, a number of commercial people took advantage of the movement, and, forming themselves into firms, gave it a commercial aspect. It was extraordinary the abuses that crept in when people only had the idea of making as much money as they could. In his opinion, Art in the churches ought to be an expression of our national life, including not only the actual incidents, but also the tendency of the thought of our own time. The artist ought, therefore, to be allowed considerable breadth in the selection of his

lack of analogous occurrences continually happening, and, by taking them, our religious Art could be made a national Art, and the heroism of the race could be made more catching, if he might use that word. The Association must ensure the application of better workmanship than the commercial firms were able to supply—there must be guiding it a strong, sensible, manly feeling, not a morbid and ecstatic religious feeling.

A GRANITE drinking fountain, in commemoration of the Queen's Jubilee, situate at the north-east end of Shaftesbury Avenue, at its junction with New Oxford Street, has just been unveiled.

THREE men were killed and three others injured by the fall of a scaffold at Ayr Town Hall. The hall was destroyed by fire on the first of July, and a number of labourers were recently engaged in taking down the walls. Nine men were on a scaffold at the east end of the building when it suddenly gave way. The erection of the scaffold was, it is stated, a sub-contract.

or historical value. The limitation is as vague as the old definition, and perhaps the best results of the decision will be to compel the Government to pass a general and rational law, under which the possessor of an object having value from its antiquity shall be free to carry it out of Italy. Professor Villari, when Minister of Public Instruction, proposed a sensible and comprehensive law, which, while imposing a small duty and the necessity of a permission to export, for the purpose of controlling the exportation of the heirlooms of the nation, made it indispensable for the Government either to purchase or permit the exportation. This law, like most of those which the public good has called for, has ever since lain covered by the petty legislation for electoral purposes, which impedes all useful reforms other than those demanded by the constituents of the ministerial deputies. If an object is precious and indispensable to the honour or history of Italy, it is reasonable that its exportation should be prevented, but only by purchase, for it is an outrage that a man may not dispose, according to his interests or necessities, of articles which are his unquestionable property.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 22nd, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A MEETING has been held at Wakefield to receive the report of the committee appointed in October to promote a memorial to the late Bishop of Wakefield. A report from the late Mr. Pearson, R.A., in which he recommended that Wakefield Cathedral should be enlarged at an estimated cost of £20,700, was adopted, and it was also decided that a memorial window should be provided by children. The sum of £1200 was promised in the room, £400 having been previously subscribed.

At the Houses of Parliament, the arrangements for the coming session are practically already complete. This recess has been free from the carrying out of any of those internal structural alterations which so frequently delay the final preparations until the close approach of the date fixed for reassembling. The only change of the slightest importance which has called forth the efforts of the Office of Works has been the opening of a new doorway, to facilitate the passage of members and their visitors to and from the now fashionable terrace.

THE Dean and Chapter of Canterbury have approved the revised design prepared by Mr. Jackson, R.A., for the tomb of the late Archbishop Benson. It will be Early English in character, and has a general resemblance to the tomb of Archbishop Peckham in the Martyrs' Chapel. The construction of the memorial will be at once proceeded with, and when completed it will be erected over the resting place of the late Primate in the north-west angle of the cathedral nave.

VENICE has been the scene of a most interesting ceremony. An act of vandalism perpetrated some centuries ago has been expiated. The great Lion of St. Mark has been restored to the Doges' ancient palace. Andrea Gritti, who was Doge in 1523, not content with winning back for Venice all the possessions which were hers prior to the League of Cambrai, also erected the celebrated Lion. It was twenty-three metres in height. The Doge was represented as kneeling in prayer at its side, whilst one of the Lion's paws rested on an open Bible. It remained in the middle gallery of the Doges' Palace until hurled away as one of the victims of Venetian democratic vandalism. Two years ago the work of restoring the Lion was confided by the Italian Ministry of Fine Arts to the well-known sculptor, Signor Urbano Botasso. The product of his genius, which is almost a fac-simile of the original figures of the Doge and the Lion, is now finished.

THE Marquis of Exeter writes:—"As a member of the committee for the restoration of Peterborough Cathedral, I venture to draw the attention of the public to the work which has now been carried out, and paid for, upon the northern point of the west front. No one who has watched the progress of the work can fail to appreciate the care which has been shown. The committee have now to deal with

the remainder. The south-west and central gables of the west front, and the north transept, and the eastern chapel, are an immediate cause of anxiety. To cover these repairs, £7500 is required, and I appeal to those who are interested in the preservation of these sacred and historic monuments to help the committee in their task. The skill shown by the late Mr. Pearson and his assistants in taking down and restoring the old stonework is a security to any who are alarmed lest the old feature should be sacrificed, and is a guarantee that money sent to the Dean of Peterborough to forward the committee in their work will be spent upon that which Mr. Pearson reported to be absolutely indispensable." The authorities at Peterborough should be closely watched.

It is announced that Her Majesty's Judges have expressed their intention of approving the plans submitted by the Corporation of London for the erection of a new Central Criminal Court, and that the work of demolition will proceed at no distant date to make way for the new building. The delay has been caused by an endeavour to retain the corner-piece, facing Giltspur Street, as a stronghold for the City of London in the event of any future rioting. It has now been decided, it was stated, to agree to the removal of the portion of the prison referred to.

AFTER many months of hesitation, the Council of the Royal Academy has at length taken a definite step in connection with the proposed alteration of the laws governing the summer exhibitions at Burlington House. A committee of six Academicians has been appointed to report generally upon the whole question, and particularly upon the advisability of reducing the number of pictures submitted by outsiders. Whatever be the report of the committee, it is not, however, probable that the arrangements for the exhibition of 1898 will undergo any alteration. Besides the amending of its rules, the Academy will shortly have other important business on its hands in the shape of elections. There are just now no fewer than four vacancies among the Academicians, caused by the deaths of Sir John Gilbert, Mr. Burgess, and Mr. Pearson, and by the recent retirement of Mr. Horsley. The election of successors to the four Academicians will, of course, make as many vacancies among the Associates. There is already one Associateship unfilled—that caused by the promotion of Mr. Sargent last January, so that five outsiders may look forward to being received into the Academic fold during the early spring.

A DESIGN for Vauxhall new bridge has been unanimously approved by the Bridges Committee of the London County Council. It promises to be a striking addition to our Thames bridges, and if carried out as proposed will be constructed of concrete cased in granite. The temporary structure is likely to be completed in January.

A NEW departure in the construction of prisons has been made at the Erie County Penitentiary, United States. As prisons are now built, their security depends on the outer walls and gratings over the windows. The heating and ventilating is generally defective, the lower cells being too cold and the upper too warm. They are also badly lighted. The new prison is built with a central corridor, from which the cells open, and these are of steel grating, tool-proof. The cells are heated by steam pipes, each story separately, and skylights in the corridor illuminate them. From a watch tower in the middle of the corridor the guards can see every door of the cells. There is also a guard's walk at the rear of the cells, which are ventilated by openings in the steel doors of the cells, which do not permit a prisoner to see out, thus completely isolating him. Exercise is taken in the central corridor.

AN "open space" that has a European reputation has long been threatened, and has now at last been rescued from the speculative builder. In no capital has he been more active lately, or more ferocious, than in Rome.

He found the old city marble, and he is rapidly leaving it plaster. Everyone who knows Rome will remember the beautiful grounds of the Villa Borghese, just outside the city walls, high upon the Pincian Hill. From thence you look down on the city stretching southward below you, and can see the sun setting behind St. Peter's. In the healthiest quarter of Rome, this site was the very opportunity of the speculative builder, if chance were to cast it into the market. And of this there has latterly been an alarming probability. The Borghese family were no longer the inheritors of their old opulence. Year by year the quaintly laid out grounds were falling into neglect, and the artificial ruins were crumbling in veritable decay. Once the Casino held a collection of antique sculpture so rare that Napoleon carried them off to Paris, and the indemnity promised to the Prince Borghese of that day—fifteen millions of francs—was never paid. But the pedestals were not left unoccupied, and to this day the Casino is one of the sights of Rome. The grounds themselves are, in a way, its Hyde Park. It is here that, in the season, in the winter months, and in the early spring, the fashion of the modern city is seen, and scarcely a day passes but the scarlet liveries show that the King or Queen is driving in the grounds. This "open space" was too intimately associated with many sides of the life of modern Rome to allow of its being sacrificed to the builder. The municipality has bought it from the family, to whom will be paid for the concession an annuity of £6000 a year.

THE Lord Mayor and Sheriffs, who wore their robes of office, and were attended by the sword-bearer and mace-bearer, attended an interesting commemorative service at the Church of St. James, Garlickhythe, at the foot of Garlick Hill, City, on the 10th inst., the anniversary of the reopening of the sacred edifice on December 10th, 1682, after the rebuilding by Sir Christopher Wren in consequence of the Great Fire of London. The Bishop of London remarked that the interest taken in the City churches where-with London was decked by one of the most brilliant geniuses England ever produced was gratifying to those who worshipped in that building, and to those who were its custodians. The whole of the tower and west front of the church have been carefully restored, and the quaint clock, with its figure of St. James, repaired and redecorated.

THE Fire Brigade Committee of the London County Council report an instance in which the operations of the Works Department have resulted in a large saving. The Council, on October 20th, 1896, and April 6th, 1897, authorized the execution by the department of some repairs, painting, and drainage work required at the Rotherhithe Fire Station, the architect's estimates being respectively £490 and £148, making a total of £638. The revised estimate of the work amounted to £658, but the actual cost has been £489, a saving of about 25 per cent. on the revised estimate. The manager of the department gives the following explanation of the saving:—"I attribute the greater part of this saving to the improvement in the organization of the Works Department and the closer attention now given to detail in carrying out the work. Greater care is observed in collecting materials together before commencing the work, and advantage is taken of any circumstances by which a saving may be affected. In the present case the materials were collected in the yard and barged to the job instead of carting in small lots. We were able to save also by reason of having other work proceeding at the same time in the neighbourhood, and, further, were not interrupted by arrangements necessary for the convenience of the fire brigade, as is generally the case. There were other circumstances which helped to increase the saving, and which we cannot expect always to find in other works."

THE great canal, the total length of which will be nearly 1000 miles, and which is to connect the Baltic with the Black Sea, is to be

commenced next spring, the surveys for it being in an advanced state. The new waterway is to be 217ft. wide at the ordinary water level, and 117ft. at the bottom. Its depth being 28½ft., the largest war vessels will be able to pass through it. The canal commences at Riga, and it will follow the course of the river Dūna, as far as Dūnaburg. Here the great excavations will begin which will connect the canal with Lepel on the Berasina. That river will be utilised as far as its junction with the Dnieper, when the latter will be followed to its mouth, near Cherson. Of the whole length of the canal, 875 miles will be canalised rivers, leaving only 125 miles for the excavator. The canal will have eighteen ports—at Riga, Jakobstadt, Dūnaburg, Lepel, Borissov, Robruisk, Kieff, Pergaslav, Kuneff, Cherkassy, Kremenshug, Verchnedneprovsk, Yekaterinoslav, Alexandrovsk, Nikopol, Berislavi, Aleshki, and Cherson. The enlargement of the two terminal ports of Riga and Cherson, on the Baltic and Black Sea respectively, is at the present time being actively proceeded with. The canal is to be substantially constructed so as to allow vessels to proceed at a uniform speed of six knots. At that speed it will take 144 hours to make the whole journey. The canal is to be lighted by electricity, to avoid stoppages at night. Its total cost is estimated at £20,000,000, and the work of construction will probably take four years.

"In a recent issue of the Times," writes Mr. Mark H. Judge, "Sir Arthur Arnold stated that the London County Council 'had no more to do with the house drainage of Kensington than with that of Birmingham.' I ventured to correct this statement by quoting from the Public Health (London) Act, 1891, to prove that it is the duty of the County Council to make bye-laws with regard to w.c.s and the proper accessories thereof; and, further, that the Council is invested with powers to enforce compliance with such bye-laws. Sir Arthur does not venture to question the correctness of my letter, but says 'it may cause misunderstanding,' and tells of his connection with the Drainage Committee in the following words:—'I have been a member of the Drainage Committee of the County Council since the day of its formation in 1889, and no one can know better that we have nothing to do with house drainage.' If Sir Arthur had said that w.c.s have no connection with drains he would have been correct in some cases, but these cases would hardly have been approved by the Drainage Committee of the County Council. A statement by so old a member of the Drainage Committee as Sir Arthur Arnold might, perhaps, be accepted without question with regard to what the committee 'had done,' but the Public Health Act must be a better authority with regard to what the County Council 'have to do.' I have had to do with the drainage of houses in London for a longer period than the Drainage Committee of the County Council has been in existence, and I am bound to say that my recent experience would seem to show that Sir Arthur Arnold is not singular among County Councillors with regard to the view he holds as to the Council having anything to do with house drainage."

"The County Council," continues Mr. Judge, "has made bye-laws with respect to w.c.s and the proper accessories thereof, and one of them is as follows:—'Every person who shall construct a water-closet in connection with a building shall furnish such water-closet with a cistern of adequate capacity for the purpose of flushing, which shall be separate and distinct from any cistern used for drinking purposes, and shall be so constructed, fitted, and placed as to admit of the supply of water for use in such water-closet, so that there shall not be any direct connection between any service-pipe upon the premises and any part of the apparatus of such water-closet other than such flushing cistern.' However divergent our views may be with regard to machinery for enforcing such a bye-law, after the epidemic at Maidstone I suppose no one will venture to approve of a drinking water supply being in direct connexion with water-closets. On October 11th I inspected a new building near

to Oxford Street, on which I had to report that the cistern for the supply of drinking water was in direct connexion with three w.c.s. My client had an agreement for a lease at a rent of £350 per annum, and it has taken nearly two months to induce the owners to agree to disconnect the w.c.s from the drinking water service. My former letter ought to have convinced Sir Arthur Arnold that the County Council has duties in connection with house drainage, and I trust that the above statement of fact will prove to him that in the interest of the public health, these powers ought to be exercised in so important a matter as the connection of drinking water with w.c.s."

An important point under the London Building Act, in connection with the inspection of stands to view the Jubilee procession, was decided by Mr. Fenwick at Southwark Police Court. Messrs. Patrick and Son, builders, of Westminster Bridge Road, were summoned by Mr. Bernard Dicksee, district surveyor, for the non-payment of £23 12s. 6d., his fees for inspecting a number of stands erected by the defendants within the premises of Messrs. Day and Martin, Borough Road. At previous hearings evidence was given that the stands in question were inspected on the complainant's behalf by a young man named Brown, who was not a qualified surveyor, and it was contended that Mr. Dicksee ought to have personally inspected them.—The magistrate, in giving judgment, said the work of surveying and inspecting was obviously work of a personal character, involving the exercise of professional skill, judgment, and experience; and, in his opinion, such work could only be performed by the district surveyor himself, an assistant surveyor, or by his deputy, duly appointed under Section 142. To hold the contrary would have the result that in no case need the surveyor personally visit the premises, but could sit in his office and sanction or disapprove upon reports brought to him by his clerk or series of clerks, which, he was confident, was not the intention of the statute. Therefore he nonsuited the complainant, but would grant a case, if desired. The whole matter arose out of the fact that the district allotted to the complainant was too large for him, and that more assistants were required.—Mr. Washington said the district surveyors were agitating for an amendment of the Act.

MR. PATON, in his fifth address at the Glasgow Corporation Galleries, on Italian Art, took for his subject "Michael Angelo." He began by referring to the characteristics which distinguished the truly great artist, the true test of whom was that his works deal not with things fleeting, ephemeral, local, and trivial; but with what affects men in all climes, in all times, and under all conditions. Frith's crinolined woman was like a fashion plate of 1870; Raphael's Madonna was the eternal feminine. The two great sculptors of the world were Phidias, the Pagan, and Michael Angelo, the Christian. The works of Phidias were serenely beautiful, bright, passionless, calm, fit types of the gods of a people where deity and humanity touched each other at so many points. The gods of the Greeks were the incarnations of specific powers, virtues, and attributes, and could be fittingly treated in the calm, dignified, and passionless fashion which belongs to sculpture. Michael Angelo had another task as the typical Christian sculptor. He had to express through his obdurate material, and with the limitations of sculpture, something of the spirit of modern man, to deal with things pertaining to the unseen and the eternal. Hence his figures are full of action, emotion, of the suppressed excitement and volcanic thoughts which possessed the man. Michael Angelo was a great solitary Titanic soul full of concentrated thought and impassioned imagination, pure in life, steadfast in faith, loathing and lamenting the conditions of life and society around him—the prophet or seer of the Renaissance.

ARMADALE CASTLE is one of the most imposing baronial piles on the West Coast. It

is the home of the long-famous Lord of the Isles. Perched on a bold headland overlooking the sea a few miles from the Point of Sleat, it seems to bid defiance to the Scottish mainland, while at the same time it guards the approaches to Skye. The interior is fitted up and furnished in lordly style, and in the hall is a beautiful stained glass window, representing Somerled, first Lord of the Isles, clad in armour and with battle-axe. Armadale may be called an architectural evolution—the growth and product of ages. Practically a modern structure, it is yet old. In the past it was only a casual and minor residence of the Lords of Sleat, but has been added to and embellished from time to time, chiefly within the past century or so, until it has reached its present stately proportions. Perhaps the most conspicuous among its constructive chiefs was Sir Alexander Wentworth, the second Baron, who spent some £35,000 in improving the property.

THE London County Council has just had two actions in the Queen's Bench Division by which it sought to compel the Rowton Houses, Limited, of which Lord Rowton is chairman, and Mr. Davis, the owner of some shops fronting Brick Lane, to set back the new buildings which they have just erected in the place of older buildings that had existed prior to the Building Act of 1894. The County Council contended that under this Act its consent must be obtained by owners erecting dwellings for the working classes, as to the distance of the frontages from the centre of the roadway and as to the height. Mr. Davis's shops and the Rowton House at Newington Butts were being completed without this consent. Rowton Houses, Limited, demolished thirteen old buildings, and have erected on the same site a building capable of accommodating 800 persons. The Court held that the provision of the statute relied on applied to flats in artisans' dwellings, model dwellings, and tenement houses, and not to buildings like those described in the present cases, and the actions were dismissed with costs.

An interesting exhibition is now open at the Camera Club, Charing Cross Road. The photographs are illustrative of the archaeology of the British Isles, and many members of the National Photographic Record Association have contributed. The president and founder of the Association, Sir Benjamin Stone, has sent a number of beautiful platinotypes of Westminster Abbey, in which the smallest architectural details are brought out with wonderful clearness. A record of the objects, many of archaeological interest, scattered through Ireland, including cromlechs and round towers, has been furnished by Mr. R. Welsh in an interesting series. Devonshire photographs, principally of curious stones and crosses on Dartmoor, have been contributed by Mr. F. Burnand, F.S.A., and Mr. Law Bros sends a collection, principally devoted to prehistoric remains. Many photographs are included in the exhibition of the beautiful Elizabethan houses which are still to be found in England, while close by is a collection showing the pillories, stocks, whipping-posts, and ducking-stools still preserved in many country towns. An interesting exhibit comes from Mr. St. John Hope, F.S.A., in the shape of a paper scale mounted on wood, and marked on one half with English feet, and on the other according to the metrical system. It can be easily folded and carried with the tripod. Photographs of different cathedrals and other places of interest have been lent by Mr. T. Bulbeck and Messrs. S. B. Bolas and Company, and amongst other exhibitors are Messrs. W. A. Greene, G. Scamell, Kenrick Murray, Professor Bothamley, F.C.S., Major H. Trevelyan, Mr. Y. F. H. Woodward, and Mr. E. Marriage.

An interesting work of a rather technical character is promised in Mr. William Bemrose's "Bow, Derby, and Chelsea Porcelain." This book, which will be found to be based upon documents hitherto inaccessible to any

writer on ceramics, will shed new light on a good many obscure points in connection with the porcelain works in question. For instance, the exact site of the Chelsea works is ascertained, and personal particulars of Sprimont will be given. And the Derby products are found to be earlier and of more importance than has hitherto been supposed.

THE Millais exhibition at the Royal Academy promises to be one of the most attractive shows that have ever been held there, including as it will almost every one of his popular works. The National Gallery will break through a stringent rule and lend the magnificent "Yeoman of the Guard," and loans will be forthcoming from all the municipal and other public galleries, save, perhaps, that of Holloway College.

LONDON Nonconformists, or, rather, a section of them, are evidently going, if possible, to revive the leasehold enfranchisement agitation. They justify their intention by a personal grievance. Of recent years they have been obliged to relinquish many churches in the Metropolitan district because of the fact that they had been built on leasehold sites. A large number of edifices are still in existence which have been erected under similar conditions. The Presbyterians—by no means one of the strongest of the Nonconformist bodies in the Metropolis—have no less than twenty-two of these buildings, and they are taking the initiative in the movement.

THOUGH we still have a fair number of ecclesiastical buildings in England which can boast of Saxon parts, a church of wholly Saxon origin is decidedly rare. This, however, is practically the case with the village church of Braemore, in Hampshire—on the borders of Hampshire and Wiltshire, and about nine miles from Salisbury—only the chancel of which, it is said, is of a comparatively modern date. The building, which stands almost in Sir Edward Hulse's park, has recently undergone complete restoration. Many interesting features came to light during the progress of the work, including the most unusual discovery of the remains of an ancient rood in the porch, which probably existed from the earliest times, and which is similar to the one at Headbourne Worthy. The remains were formerly shut out from view by a parvise, and were only disclosed when the floor of this had been removed. The church altogether is full of archaeological interest, and is exceedingly picturesque.

THOUGH the Arts and Crafts Society fears that the public does not care enough to support an annual exhibition, the increase in the number of small shows of decorative or industrial Art seems to point to an increase in the interest taken in the subject. At the Maddox Galleries Venice is represented, chiefly, we should imagine, from the manufacturers' and tradesmen's point of view. More or less well-known names to the tourist—like Salviati, Jesurum, Testolini Brothers, the Venice Art Company, Pagliarin, and Franco—are the exhibitors. They are showing the often very beautiful reproductions of old brocades now being manufactured in Venice, the laces of Burano, the carvings and furniture that are copies of old models, and the glass which at times is really good, at others as flimsy and showy as the loungers in the Piazza and the purchasers of cheap souvenirs would have it. The collection is worth seeing. The modern manufacturer is far more infallible in matters of taste, but when in Venice he has the sense to return to the good designs of the craftsman of the past, he cannot go very far astray.

THE Midland Railway Company has definitely decided not to erect a central station at Sheffield, but to greatly enlarge the present one at a cost of nearly a quarter of a million. The carrying out of the scheme will provide Sheffield with one of the largest and best equipped stations in the provinces. The work will involve the making of a tunnel under The Farm, which is the residence in Sheffield of the Duke of Norfolk.

MODERN ARCHITECTURAL PROBLEMS.*

AS ILLUSTRATED BY SOME EDINBURGH BUILDINGS.

BY PROFESSOR G. BALDWIN BROWN.

(Continued from page 402.)

MANY, perhaps most, architects of our time may not recognise in the Renaissance style of which I have been speaking a style with which they have any more natural sympathy or traditional connection than with any other. This result of the eclecticism of the nineteenth century we may deplore, but it is a fact we must accept it as it stands. To the architects thus minded, the problem of style will present more difficulties than is the case with those who can still feel the tradition of the Renaissance coming down to them through the last four centuries. To rest in mere eclecticism is to the more earnest minds in the Profession intolerable. What are they to substitute for it?

IS IT POSSIBLE?

Is it practicable to evolve a new style altogether that shall be the expression of modern conditions? It will be no doubt impossible, even if it were a thing to be desired, to get away altogether from the old forms and details. Even in Gothic Architecture, though the constructive system was so unclassical, a large stock of forms was taken over from the antique world. Now, in Gothic, the essential features of the style were evolved from the materials and system of construction, and this gives us the hint from which the modern designer might begin his new departure. In the evolution of the classical and mediæval styles the character of the material employed was counted for much. The forms of Greek Architecture are all constructive forms, though the material which originated them is not the same as that in which the style was ultimately carried out. The forms of Gothic are genuine cut-stone forms, worked out in the material used from beginning to end of the style. Brick or timber could never have produced them. In both these cases design has waited on material and construction, and it may almost be laid down as an axiom that material and construction are the essential bases of design in the tectonic arts.

DESIGN AND MATERIAL.

How does this axiom apply to the question here under discussion? In modern days the architect disposes of a new material altogether, iron or steel, and this material, though not universally employed, is used for a large and growing class of buildings in our great centres of population—the street fronts of buildings that have to present below an extensive shop window, with a considerable height of elevation above. The way in which work of this kind is being carried out here and in America cannot be considered satisfactory. Structures of this order are put together of a sort of framework of steel, but the real fabric is disguised externally by a coating of stone or brick. One can see in recently rebuilt street frontages in our large town façades of several stories, apparently in solid stonework, that rest below upon a ground floor composed entirely of plate-glass shop-fronts. The steel pillars that in reality, with the aid of horizontal girders, bear up the superstructure, are ashamed of themselves, and may often be discerned masquerading as door jambs. There is an insincerity about all this that counts to the discredit of the constructive arts of the day. It looks as if we had forgotten the old-established relation between

material and form that was like the cornerstone of the practice of these arts in the ages of the past.

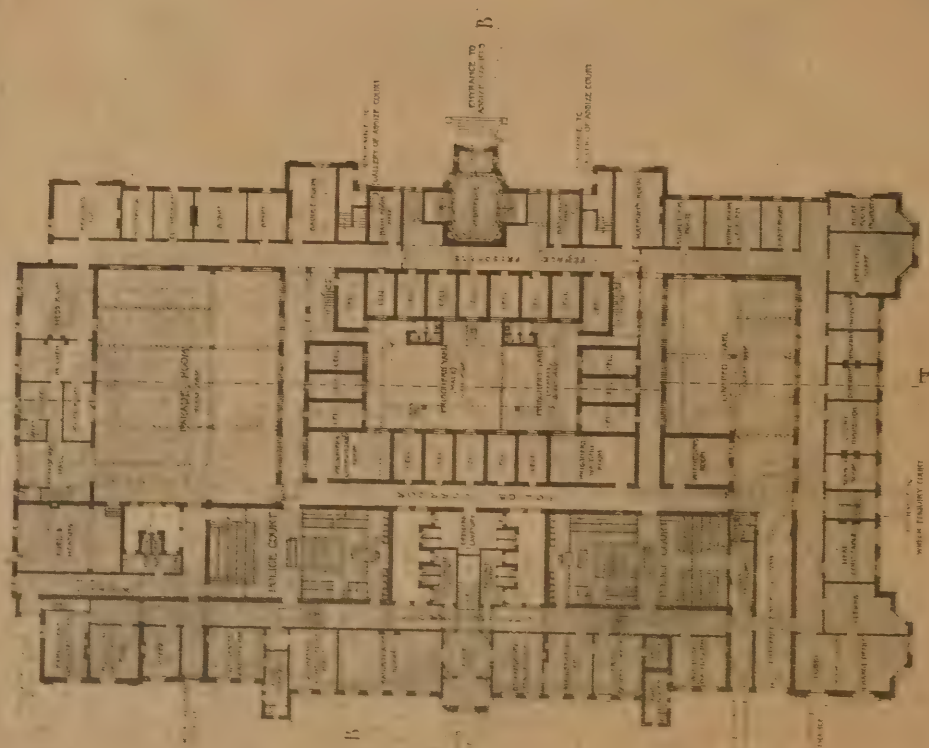
NEW MODES OF ARTISTIC EXPRESSION.

The architect of to-day who would start a new style should begin by the endeavour to find new modes of artistic expression for the new conditions and processes that govern modern building—at any rate, in some important forms of it. This use of metal for building purposes is also common in the construction of roofs, and it is pretty certain to become more and more extensive as time goes on. At present the characteristics of the material are, as a general rule, ignored, and not allowed to find their expression in the resulting artistic form. Our own country, which produces the material in enormous quantities in the forms necessary for constructive use, has done little to make these constructive features into elements of artistic design. The French seem to have taken the problem more nearly to heart. A very good illustration may be found in the new North Bridge at Edinburgh. The great arches are of the material in question, and the spandrels of them exhibit that sort of lattice-work of braces crossing each other at right angles and strengthened by diagonal struts that is the common filling of a framework of iron or steel. There are here the elements of an artistic treatment ready to hand. A lattice can be made elegant in shape without loss of strength, while the points where the braces cross demand bosses, rosettes, or masks, which lend themselves cordially to decorative effect. In the North Bridge all these possibilities are ignored, the forms in question are hidden out of sight, and the spandrels are covered on the outside by an ornamental composition of arches, in which stone forms are deliberately copied in iron, and used to hide away out of sight the real features of the construction. In the course of the discussions which went on a year or two ago about this new North Bridge, it was urged from some quarters that in works of the kind an architect should be joined with the engineer in order to secure an artistic embellishment of the structure. Something of this kind has been done, and the result is what has just been indicated. The bridge is handsome enough, and the enrichment is in the recognised taste of the day, but there is no attempt at all towards a solution of the pressing question of the artistic treatment of these important modern materials. Nor can there be any valid solution except such an one as may come from those working in the materials themselves, and making their characteristic forms the elements of artistic design. The constructor who will do this will have gifted his age with, at any rate, some elements out of which a modern architectural style may be in time evolved.

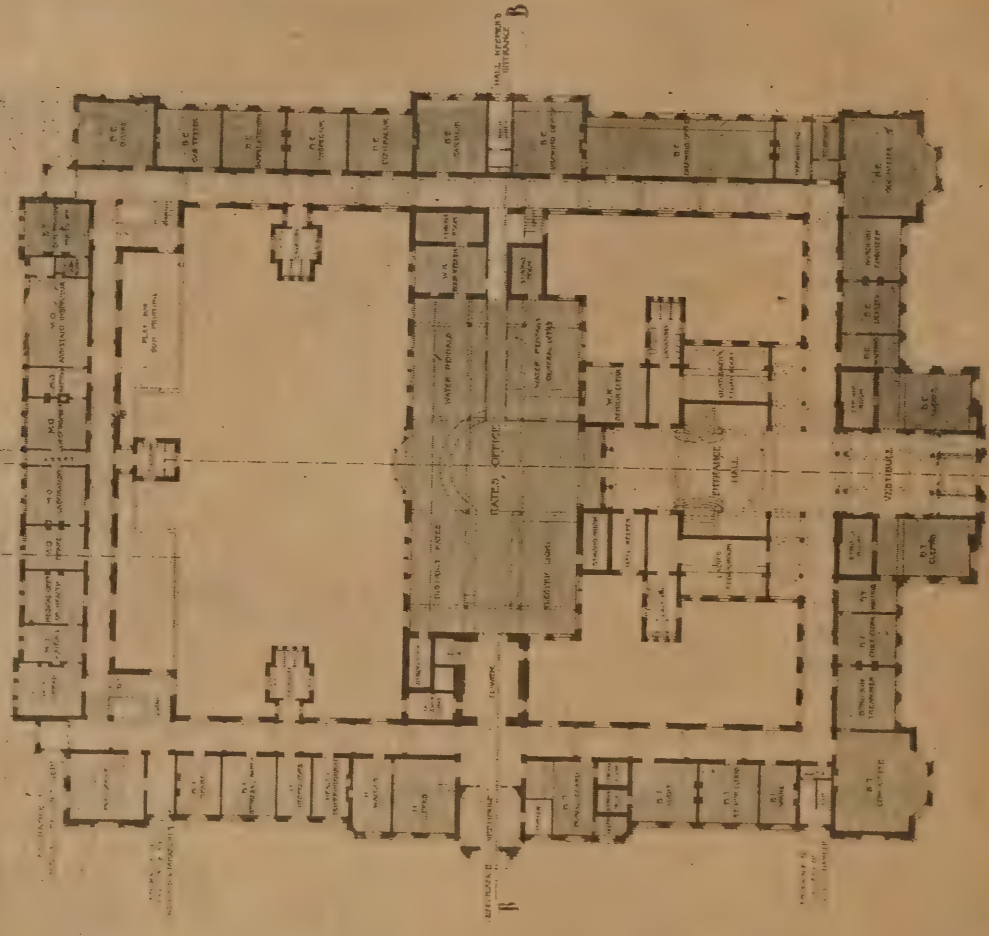
THE decoration works which are sought for immediately in St. Paul's Cathedral are these: Mosaics in the six saucer domes, three on each side, in the north and south aisles of the choir; cost, £1000 each. Mosaics round the drum of the great dome, above the Whispering Gallery, £10,000. Mosaics in the saucer domes in the nave and transepts, about £1500 each. Mosaics in the panels of the choir aisles. The activity of the decoration committee has hitherto been confined to the choir and apse, where mosaics have been applied, pilasters cased in marble, and the reredos, which gave rise to considerable controversy, erected. Other work is in progress. But when that is completed, and even when the work, for which aid is now sought, is finished, much remains to be done ere the cathedral puts on the vesture which Wren conceived. There are certain architectural dispositions he left behind him in the structure which are said to plainly indicate his intentions with regard to a homogeneous scheme of mosaic ornament.

* Extracts from an address delivered before the Edinburgh Architectural Society on December 1st.

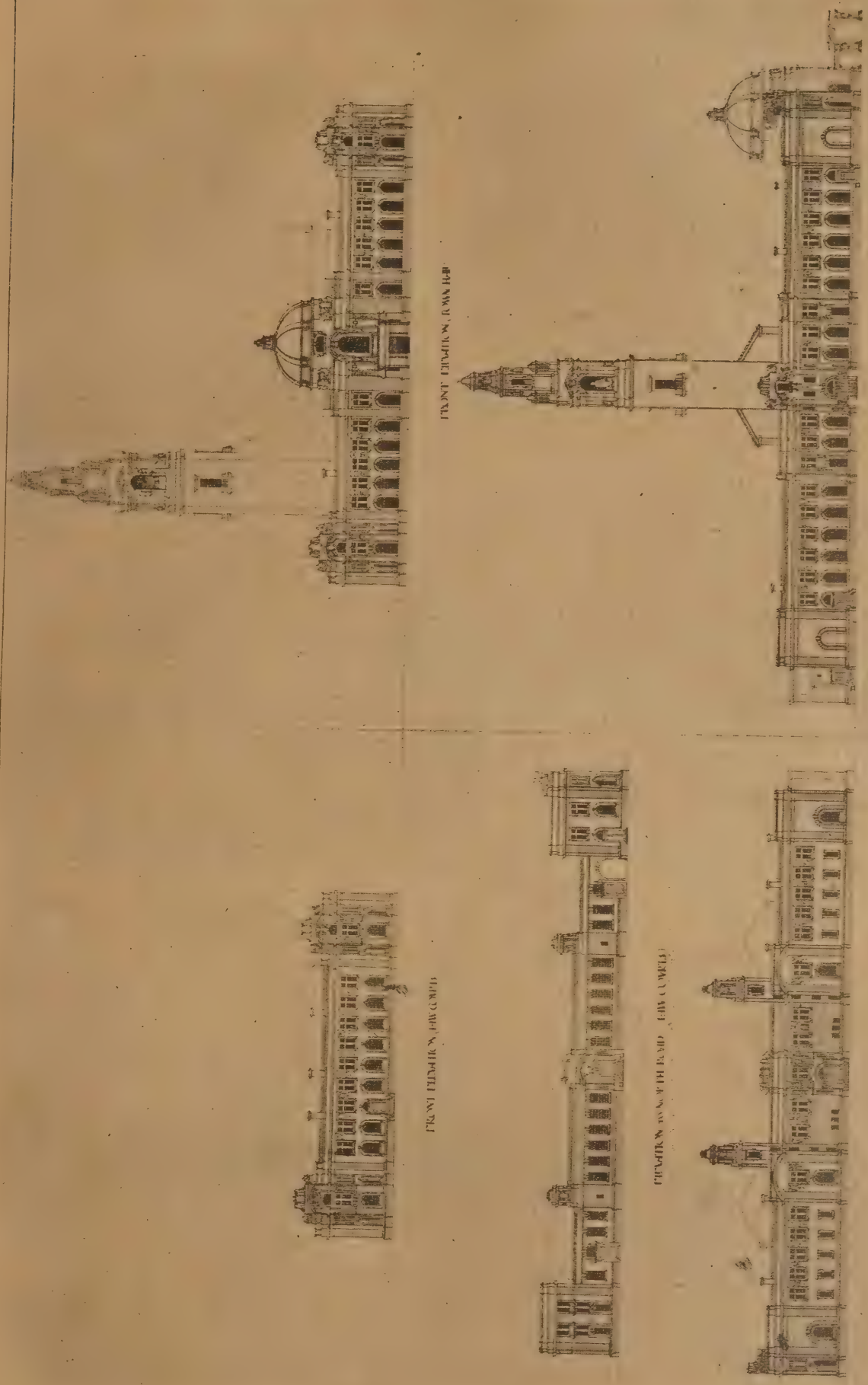
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HOUSE DECORATION.*

By L. A. SHUFFREY.

THE trade "painter" hardly gets its share of attention in many specifications, and the description, "clearcole and distemper ceilings, hang paper at so much per piece, and paint all work usually painted four coats of good oil-colour," will not ensure a good result in the hands of the ordinary contracting builder. For many years the tendency has been towards depending upon manufactured wall and ceiling coverings rather than upon hand-painted decoration, panel, and pilaster treatment and arabesques, until the practical painter who can carry out work of this kind has become a rarity.

A DIFFICULTY IN THE PAINTING TRADE

is that fluctuations of work at the different seasons of the year have a demoralising effect upon the men. When work is slack many are thrown out of employment, and when busy others are taken on who can just handle a brush, but who have served no proper apprenticeship to the trade. It is absolutely necessary to the successful carrying out of a job that a skilful and experienced foreman painter should have charge of it, whose duty it should be to control the execution of the work, mix all materials, see that proper tools and plant are used and taken care of, and that the rubbish is cleared away from time to time and the rooms kept clean. I do not propose to go into the proportions of the mixtures of materials to be used, as I could not give information on this subject from actual experience; it is a part that an architect can hardly be expected to remember, and must leave to the foreman painter. It is, however, a great convenience, and commands respect from the workman, to be able to take palette and knife in hand, and

MIX THE TINT REQUIRED

on the job. In so doing it is very desirable never to use a colour or vehicle without knowing its name and qualities, as the experience gained thereby will be very serviceable. It is difficult to gauge the amount of time this mixing of tints will take, and I can say from experience that it is desirable not to make a following appointment too soon after. In the progress of a new building you have no doubt, when visiting the works, been suddenly confronted with the question from the foreman of the job: "What colour are we to paint the outside woodwork, and the down pipes and gutters?" and in making the design you will very likely have mentally disposed of the questions whether the frames and sashes should be white, the down pipes green, whether the iron gutter running along the extreme projection of the heavy overhanging main cornice should be treated, as a member of it, at great inconvenience on account of its falls, or to quite a different colour on its own account; whether

THE OUTSIDE TIMBER-FRAMING,

if any, shall be coated with Stockholm tar, in strong contrast to the white plaster panels treated with a coating of boiled tallow and lime; and whether the bargeboards or verge mouldings should be light, like the sashes, or dark, like the framing; whether the front door shall be dark, and, if so, shall the solid frame which surrounds it be the same? The raising of these questions should be a hint that the inside colouring will be coming on shortly for determination, and a scheme of colour for the various rooms should be thought out. The principal objects of painting are to preserve the colours and produce a surface which can be kept clean, and give out a beautiful appearance. Painting has two objects in view, either to change the colour of the surfaces of the various articles painted, or to protect them from rust, rain, or wear. When applied it must become hard, and must adhere firmly to the substance painted. It is desirable, if not absolutely essential, that it should retain its colour, as, although many beautiful effects come through change and exposure, they are

generally due to the disintegration of the surface, or decay, which can only go on for a limited time. Many of you may have admired the greenish-blue colour, originally a common green, of an old garden gate; but if you examine it for the purpose of imitation, you will find that the colour eludes you, being made up of different coloured particles which you cannot match. The pleasant pinky red of old cart wheels, which looks so nice in a farm-yard, is a cheap vermilion which has faded. Tints should be made stronger in outside painting than at first desired, to allow for some diminution from exposure, which will most certainly occur, and for the reason that colours are softened by the atmosphere. In this respect colours vary very much, losing less as they increase in warmth. A soldier's coat will appear its reddest on a foggy morning.

EXTERIOR.

After fixing, the earliest opportunity of a fine day should be taken advantage of to paint all the external wood and ironwork, the priming having been done before fixing. The woodwork, if it be a light colour, will require four coats of white lead, mixed with linseed oil and driers; if it be finished a dark colour, boiled oil, which is a better drier, should be used. For external ironwork, paint composed of oxide of iron and linseed oil is the best protection. In cases of engineering works which have been sent abroad, ironwork which has been painted with oxide paint has stood much longer than similar work painted with red lead. A drawback to the use of oxide paint is that the range of colour is limited, being principally red, which, in the case of a red brick house, is the last colour one would desire. Other colours can be obtained by mixing, but the protecting qualities of the paint are reduced thereby. All gutters should be painted inside as well as out. A painted front door to a house, if exposed to a sunny aspect, is a constant source of expense, as the paint soon cracks off and blisters, and has to be burnt off down to the wood each time it is repainted. A practical painter has told me, speaking from actual experience, that if zinc white is used entirely instead of white lead, this blistering will not happen.

IN THE CASE OF TOWN HOUSES,

cemented or stuccoed fronts often have to be treated, and this is generally done with oil paint; it is a heritage left to us by a former generation, and we must make the best of it. The only satisfactory feature about painted cement work is that it keeps out the wet. The money spent on the painting of cement fronts in London would have paid for the use, in many cases, of Portland stone or rubbed brick—the two materials which, in my opinion, are pre-eminently suited to the London atmosphere. If Portland cement is used, in my opinion it should not be painted for about two years. When cement is left from the float with a granular surface it has a pleasant enough appearance, but it gets so grimy in time, painting in oil is resorted to, and this looks very well until successive coats have filled up the grain, which then has an unsatisfactory reflecting surface, cracks appear which have to be stopped, and as Portland cement cannot be painted with safety until it has stood about two years, these cracks have to be stopped with Roman cement. A distemper which would stand the weather seems to be the solution of the problem. This merit is claimed for Duresco, and, I think, justly. I have made enquiries of master painters who have used it, and they are very strongly in favour of it, providing it is used under comfortable conditions, as to time for hardening. The clubs in Waterloo Place are an illustration of the treatment of stucco. The United Service in its natural colour is depressing in the extreme. The Athenæum, with its white painted dressings and grey distempered walls, shows about the best which can be done with it; and the Travellers' is a good illustration of how a good design suffers from being executed in an unworthy material. The conclusion which I come to is that Portland cement facing is not suitable for London. For reasons of economy, outside

painting should be limited in extent as much as possible; woodwork should be painted every three years with good white lead and linseed or boiled oil, special care being taken to see that the surface is dry and free from dust when it is applied.

INTERIOR.

In dealing with the interior of the house, I propose to take the parts of the rooms in the order in which they are usually finished—ceilings, woodwork, walls, and floors. Ceilings give the decorator more trouble than any other part of the room, for various reasons, the principal being the cracking of the plaster. I have no doubt you are all familiar with the maps of rivers which present themselves when you look at the ceiling on a bright morning a year or two after a house has been built, caused partly by the shrinkage of timbers or vibration from persons walking on the floor above, defective sand, lime, or hair, or by the floating and setting coats following too quickly after the rendering, before it has had time to get thoroughly dry. To prevent this, important ceilings should be lathed on crop battens or ceiling joists fixed beneath the floor joists. If ornamented, the most convenient plan is to make them of fibrous plaster; the method being to make models of the various parts, and then from plaster, wax, or gelatine moulds make their casts of plaster-of-Paris, which have embedded in their thickness canvas and sawn laths of pine, in places where required for strength or fixing. These slabs are then fixed to the battens with screws, and the joists made good with plaster and canvas. Existing ceilings can be covered up by fibrous plaster screwed to the lath and plaster, provided, of course, that the latter is sound and has a firm hold of the lath. Brass screws should be used, as iron ones rust and stain the plaster.

CEILINGS

on the underside of floors, composed of iron and concrete, can be plastered right on to the concrete, if the boarding on to which the concrete is thrown is kept down low enough beneath the joists for the concrete to pass under. Cracking sometimes occurs through the iron joists being run into flues, and the expansion and contraction of the metal caused thereby. In fixing ornamental ceilings of fibrous plaster, battens should be used nailed to the concrete, and the slabs screwed to the battens. Coming to the surface, the most usual method of finishing ceilings is in distemper or tempera. In the case of new work, the surface should be clearcoiled, i.e., washed over with a coat of thin size and whiting with a little alum mixed with it, having previously removed any excrescence. The distemper is made by dissolving the best whiting in clean water until it is of the consistency of thick cream, and perfectly smooth to the touch, to which should be added prepared size, previously warmed, the colour being separately rubbed up with some of the distemper; the whole should then be gently mixed together, and strained through a coarse cloth or metal strainer. When allowed to set it should be of the consistency of jelly, in which condition it should be applied to the ceiling. As

DISTEMPER

changes its colour very much in drying, it should be tried on a piece of white paper and allowed to dry. The drying may be assisted by holding it against the face, or back of the hand, but not by holding it to the fire, which would prevent its drying its natural colour. Having procured the right tint, the distemper should be applied quickly to the ceiling with large brushes, preferably by two pairs of hands, and then stippled with large, flat brushes, taking care not to go over the same part twice. There should be no draught in the room whilst this is in progress, but when completed the sooner it is dried the better. If this operation is successfully carried out, a very pleasing effect is obtained. If the first coat does not dry out satisfactorily, the operation may be repeated. Even with experienced hands distempering is not always successful, particularly if done during foggy weather. If dealing with old ceilings the distemper must

* A paper read before the Architectural Association on Friday, December 17th.

be washed off right down to the plaster face, all cracks raked out and stopped with putty (plaster-of-Paris and distemper mixed), and the whole rubbed smooth with pumice-stone and water; stained parts should be painted with oil-colour, and the whole clearcoated and distempered as before described. If

OLD CEILINGS.

are in bad condition, it is desirable that they should be lined with paper, which should have a coat of weak size before being distempered. Distemper is superior to oil-colour in the clearness and delicacy of its tints, and in that it does not discolour in the same way with age. It is also very much cheaper. Its demerits are that it will not bear washing, and, being thick, it soon chokes up delicate mouldings or ornament. It is, therefore, the custom, where there is a considerable amount of elaboration or ornament, to execute the work in oil-colours, either flatted or flat varnished. This in a country house, or where no gas is used, will last a great many years, and bear washing and touching up. If dealing with ornament in relief, it is a good plan to paint the work twice with oil-colour and then distemper it. The distemper coat rather pleasantly softens the ornament, and can be washed off down to the oil-colour, when the work has to be redecorated. Some of the coarsely-modelled ornament of the Jacobean period may owe its charm to the indistinct suggestiveness caused by successive coats of distemper, but it is hardly desirable to aim at an effect of that kind. The style of ornament which we understand as "Adams" is often executed of composition fixed with tacks and glue in small repeats on a plain ceiling previously lined with paper. This is

A VERY REFINED STYLE OF ORNAMENTATION, and is often pleasantly relieved with painted medallions, in which case a parti-coloured treatment is desirable to hold up the medallions and prevent their spotting too much. The electric light being frequently placed near the ceiling, very slight relief is sufficient, the light coming almost horizontally, and throwing long shadows. Covering a ceiling with a pattern paper is a simple and satisfactory way of treating it. The pattern should be centred with the room, and the joints carefully butted. Stamped materials for ceiling coverings are numerous, and by their use an exceedingly elaborate effect can be obtained at a very moderate cost. The best are they which do not imitate plaster work. They are very useful for strengthening and hiding the defects of old ceilings in a bad condition, but have not the individuality which can be procured by even a little plaster ornamentation designed for its special position, and I look upon them as suitable rather for old than for new buildings. The plan of hanging a heavily flocked paper on the flat of a ceiling and painting it is a good one, and the effect is much improved if a flat band forming a frame to it next the cornice can be arranged so that the ornamented portion has a recessed appearance. This flat band was much affected during the Greek revival period, and often had pateræ fixed on it at intervals. In applying to an old ceiling either ribs or any relief ornament which has strongly pronounced straight lines, it is necessary to apply a straight-edge to the surface to ascertain whether it sags or undulates, otherwise you may find that what appeared level before becomes like the waves of the sea.

WOODWORK.

If it is desired that the woodwork of a house should be painted, and not stained and varnished, a process which I am thankful to believe has almost died out, the knots should be covered with patent knotting, to prevent the resin discolouring the succeeding coats of paint; or, if very bad, they should be cut out or covered with silver leaf. Before the work leaves the carpenter's shop it should be primed with red or white lead, mixed with linseed oil and turps, to prevent its being affected by a damp atmosphere. Backs of panelling, or any woodwork which has to be fixed against a wall, should have a thick coat of oil-colour before fixing. Before the next coat is applied the surface should be rubbed down with glass

paper, and the brad holes, open joints, or cracks filled with hard stopping, and the dust removed. The second coat, mainly of linseed oil and white lead, should then be applied. The third coat, which is the ground for the finished colour, composed of white lead and linseed oil and turps in equal proportions, and, with an approach to the finishing colour, should be evenly laid on, the direction of the brush following the direction of the grain of the wood. This should dry out uniformly, and if it does not do so, should be repeated before the finishing coat is applied. By mixing varnish with the finishing coat, an egg-shell gloss is obtained, and this is the finish which appears to me most suitable for work generally. It does not require so much preparation as varnished work, does not show up slight unevenness, and will bear washing. It is sometimes called a bastard flat. If it is desired that the surface shall not shine at all, it will require a flattening coat of the required colour, mixed with white lead and turpentine only. Flattening should follow the previous coat about twenty-four hours after, before it has had time to get hard, so that it may be incorporated with it, and the more shiny the previous coat the more dead will be the flat.

OLD WORK

should be gone over with the stopping knife, then rubbed with pumice-stone and water; greasy parts should be washed with turpentine, and, where the paint is rubbed away, primed; cracks or holes should be stopped and hollows filled up, being left full to allow the stopping to shrink, and then levelled off afterwards. The first coat should be mixed with turps, and the succeeding ones as before described. Woodwork intended for varnishing requires extra care bestowed upon it from the beginning to secure an absolutely smooth surface, and, after the fourth coat, should be applied one or more coats of French oil varnish, or pale copal for delicate tints, being rubbed down between each coat with pumice-stone powder and water, and a felt float to remove all inequalities. This can be repeated until the work has the finish of a coach panel or a Japanese lacquer tray. Work of this kind is expensive, but very durable, and should be designed with this finish in view with very simple mouldings and large plain surfaces. It is, in my opinion, only under these conditions that internal varnished work is tolerable. It would be unwise to treat the work of a new house in this way before it had got over its infantile diseases. If it can be so arranged, a good plan is to leave a house with three coats of paint and lining papers on the walls for a season or two, when the

FINISHING DECORATIONS

can be carried out with the satisfaction that they are being executed on a good basis. Often the contractor who builds the house is not the best man to employ for the decoration, and one set of men is conveniently got rid of before the other commences. Some of the most beautiful colours can only be obtained by "glazing," the term given to painting with a semi-transparent colour mixed thin over an opaque colour. This is generally done with tube colours. In treating of house painting, the subject of graining should not be omitted, although out of favour at the present. Personally, I dislike it mainly for the reason that I never meet with any that is pleasant in colour. The merits justly claimed for it are that it wears well on account of its broken colour and varnished surface, and can be easily touched up without repainting. I see no reason why combed work, in colours not necessarily resembling wood, should not have a good appearance, also the merits claimed for grained work. I have some specimens which have been grained in one colour; then a second colour has been applied, and combed whilst wet, and afterwards varnished. Another plan is to stipple the second colour, and then varnish.

WALLS.

New walls, if intended to be painted, should be plastered with Parian or Keene's cement, and should have two coats of white lead and linseed oil and litharge mixed rather thin, to

soak into the plaster and stop absorption; the third coat should be thicker and mixed with spirits of turpentine and colour, and the fourth thicker still and mixed with equal parts of linseed oil and turpentine, with sugar of lead as a drier. The colour should be darker than intended to be finished, each coat should be allowed to dry thoroughly before the succeeding one is applied, and should be well rubbed down with glass-paper. The finishing coat is best stippled with large flat brushes, as a granular surface is obtained, the wearing properties are not impaired, and the unpleasant reflecting surface is broken up. Any appearance of damp must have the cause removed, as no tinkering with the face of the wall will be a lasting remedy. Any

PATCHING OR CHASES

should be made good with Parian or Keene's cement, which can be painted at once, provided that the bed or backing has been first painted with oil-colour to prevent the damp from the cement soaking into it. It is claimed for adamant plaster that it can be painted in twenty-four hours, but my experience of it is that this cannot be done with safety if cement has been used in the wall or floor, as the salt from the Portland cement will continue to come through for weeks after the plastering is done. The manufacturers recommend a wash of barium chloride, but this I have not tried. Another trouble which affects the finishing of walls is discoloration in patches where Fletton bricks have been used. I have spoken to the manufacturers about it, and am informed that it is caused by using overburnt bricks, and that a bricklayer experienced in the use of these bricks would not make use of these overburnt ones for inside work. Considering the very large quantities now being used in London in place of stocks, it is very important that the matter should be understood, the only remedy being to cut the brick out.

WALL-PAPERS.

The most convenient way of finishing walls, and that most largely adopted, is covering them with printed wall-papers. It is a simple process, and may be quite inexpensive, and they are easily cleaned off and renewed. Skilful paperhangers are not difficult to find, so a badly-hung wall-paper should not be tolerated. The surface of the wall should be rubbed over with glass-paper to remove all excrescence, and it should then be clearcoated, and the papers hung without joint from top to bottom, having their joints carefully trimmed and butted. On new walls it is a good plan to hang white lining paper preparatory to hanging a more expensive paper; this gives the latter a much better chance as far as discoloration from the fresh walls is concerned. Walls should be lined with brown paper before hanging embossed or strong papers, as otherwise they are liable to slide in shrinking, and open at the joints. It is a good plan also to line and clearcoat preparatory to distemping walls; it has an advantage over using a tinted paper, as the joints need not show, which they would do in the case of the distempered ground.

THE VARIETIES OF WALL COVERINGS

which may be suitably used for the space usually called the filling are numerous. Immense talent has of late years been employed in the designing of wall-papers, until we almost have more than enough, and there is a temptation, when choosing from a number of ambitious designs, to forget that in most cases the wall on which they are to be hung should be looked upon as a background—a purpose for which many of them are eminently unsuitable, and, if there could be more connection between the designing and the using of them, the designs and colourings would be very much modified. I am not now referring to the large flowered designs in natural colours which are exhibited in drapers' windows, accompanied by the notification that they can supply the chintz for hangings to match them. A less interesting arrangement I cannot conceive. A piece of English wall-paper is 12 yards long by 21in. wide, containing 63 square feet. French paper is 9 yards long and 18in. wide, containing 40½ square feet; so in estimating the quantity required, half must be added to the measure

for English papers, and the price considered in relation thereto. The simplest wall-paper consists of a pattern printed from a wood block, in repeats, with distemper colour on previously distempered roll of white paper, and in this form is suitable for use from the servants' bedroom to the principal reception-room, the dignity required depending upon the form of the design and colouring, and if we had nothing more than this we should still be very well off. The varieties of

EMBOSSED COVERINGS FOR WALLS

now available in decoration are numerous. They have the merit, when hung on an ordinary plaster wall, of presenting a wearable surface, and one that is capable of decoration after hanging in various ways, either by painting all over, particolouring, rubbed out, or stippled effects. The skill displayed in the Japanese leather papers in design, modelling, and treatment of the surface with metal and colours, made them very popular, and they have been used in place and out of place until we are rather overdone with them. A luxurious finish to a wall is covering it with silk damask or brocade, and this plan can be adopted with more propriety now the electric light is more general, and the dirt and discoloration from gas got rid of. It may be treated as a continuous band round the room, or introduced in the form of panels. In either case it should be so arranged as to have a solid back to prevent the accumulation of dust behind it. Lastly, I may refer to the hanging of real tapestry, which I consider has a value beyond any other wall covering, either as covering the entire wall, suspended from the top, or in panels. No other decoration is required, and a tinted white for the woodwork appears to give the best value to the tapestry colours. Following the order which I first laid down, we come to

FLOORS.

The ordinary deal floor, by the process of building, gets so stained and disfigured that it is necessary, if any part is intended to show, to stain it a dark colour and varnish it. A border around the room enables a reversible square of carpet to be used, which is easily taken up and shaken. The reception-rooms should be laid with hard oak or *jin*. oak parquet over the ordinary floor, which makes a very good job, provided the floor has got to its normal condition. It is best deferred for a season, as the best flooring will sometimes swell and buckle, when, if laid, the parquet will follow it and present a series of corrugations. The usual plan for finishing the oak is to give it a "stiffener" of French polish, and then brush over with beeswax and turpentine. Plain linoleum of its natural reddish-brown colour will be found serviceable and pleasant for many of the secondary rooms of the house. It is very durable, and, although I have heard something said about its rotting the boards through excluding the air, I have never found this to be the case. Before going on to the subject of colour, I may sum up in a few words the processes which I have been describing, omitting descriptions in detail of the materials, pigments, and vehicles used.

SURFACES WHICH HAVE TO STAND WEAR

should be painted with oil-paint, composed of white lead, linseed oil, and dryers. Zinc white is a purer white than white lead, but has not the covering capacity; it may be used with advantage for the finishing coats of light colours. Surfaces which do not come in contact with any bodies may be treated with less labour and as good an effect with distemper composed of whiting and size and the necessary colour. Oil surfaces may be made more durable by varnishing, the degree of finish being a question of labour and expense. It is important for the stability of painted decoration that pigments of a fugitive nature should be avoided, also that their chemical action, when mixed one with another, should be understood, and this subject has been treated of by Mr. W. J. Muckley in one of the handbooks of the Science and Art Department at South Kensington Museum. He therein gives a list of permanent, semi-permanent, and

fugitive colours, and practice might very well be confined to the use of the first two classes, if not of the first only. As house-painting must necessarily be renewed there is not quite the same necessity for absolute permanence as in a painted picture. The simpler the mixture of colours to produce the required tint the more likely it is to be satisfactory, and to keep its colour. I have read somewhere that the "quickest way to good colouring is through a short palette."

THE THEORY OF COLOUR

is treated exhaustively in the work of M. Chevreul, an eminent Frenchman, called "The Principles of Harmony and Contrast of Colours," and to those not acquainted with it I would recommend it as a winter's evening's amusement, as also the works of Owen Jones on the same subject, with his series of propositions on the principles which should govern the decorative Arts; but the best study for colour is the book of Nature, and to an enthusiastic student her instruction is infinite. Suggested schemes of colour are all around us. Combinations of clouds, the spring and autumn tints of trees, with their leaves back and front for colour or texture, fruit and flowers, the plumage of birds, vegetation on buildings, oxidising of metals, marbles—all present beautiful combinations which may be made use of, and an enthusiastic study of colour in the ordinary walks of life will well repay the time and attention given to it; in fact, my advice is, train the colour-sense simultaneously with that of form and proportion. When an impression has been received, take the earliest opportunity of registering your recollection of it with your colour-box; it will then be ready for use when the opportunity occurs. In a satisfactory scheme of decoration the three primary colours, yellow, red, and blue, should be in some degree represented, not necessarily on the walls of the room, but supplied by the hangings and furniture. They need not be represented in their primary condition, but in the form of secondaries and tertiaries. I should say that the

MOST USEFUL COLOUR FOR A BACKGROUND

on walls is green, contrasting with the furniture of yellow or red browns, with blue introduced in the hangings. Yellow being a primary colour, cannot be produced by a mixture of other colours; it is an advancing colour, has great power of reflecting light, and, compounded with red, gives the rouge of warm colours, orange and brown. It diminishes in power by artificial light, and for that reason is difficult to make satisfactory for both day and night effects. It is a delicate colour as a pigment, and is easily killed by admixture with other colours. It contrasts powerfully with black, and may be represented by gold in a colour scheme. Red is the intermediate primary coming between yellow and blue, and in like intermediate relation also to light and shade, white and black. It is a most positive colour, forming, in combination with yellow, the secondary orange range, and with blue, the secondaries purple, crimson, &c. It gives warmth to all colours, especially to yellow. In combination with yellow it becomes advancing, and with blue retiring. It is very much affected by the quality of the light in which it is viewed. Reds easily spoil one another side by side, and great skill is required to print one red on another satisfactorily. Red lights up by artificial light better than any other colour. Vermilion is the pigment which most nearly represents this primary. Blue is the third primary, and the coldest of colours. It is best represented by the genuine ultramarine, which is said to be a true colour, neither inclining to yellow nor to red. Blue is a retiring colour. The blues most used, on account of the high price of genuine ultramarine, are cobalt and Prussian blue; but the former inclines to purple by artificial light and the latter to green. These colours are very useful and pleasant in light tints for making greens, but, as blue lights up so badly, it may well be represented in the colour scheme by curtains or carpet. Having gone through the

usual processes in the decorating of a house, I will proceed to consider the points which should influence us

IN SETTLING ON A DECORATIVE TREATMENT,

and will commence with the vestibule. If the house is sufficiently large, this often becomes a room, with its entrance lobby screened off, and the staircase recessed from it or leading off from one side. It may contain an open fireplace, and the doors to the principal rooms open immediately out of it. It is therefore desirable that the colour should be considered in reference to the adjoining rooms. As the sunniest aspects are required for the living rooms, that of the hall is likely to be a northern one, and consequently a warm colouring would be best—a high wall panelling, or dark wall treatment to about the level of the top of the door architrave, with deep frieze of stencilled ornament in red tones, with an olive cornice, and the ceiling a lighter tint of the same. There would be very little blue or cold colour in this arrangement, and the fireplace might supply this in the form of blue tiles on a white ground and the grey metal of the stove. The old-fashioned crimson and blue Turkey carpet would complete the colouring, with a surround parquet floor, yellow stain being introduced in the window-glass. The red colouring could be carried up the staircase above a wall panelling, repeating the handrail on the wall side, or in the absence of this a wood moulding at this level, with the space below painted a greenish brown on a simple pattern embossed paper. This gives a durable surface where the wall gets most wear, and the papering above may reasonably be left unvarnished, as, except on the score of durability,

VARNISHED PAPERS

have nothing to recommend them. The varnish changes colour, and becomes in most cases very unpleasant, and is more susceptible to changes of temperature than an unvarnished paper, a sudden change from a cold day to a hot one covering the walls with moisture. An oil-printed paper on an oil ground is a good substitute, as it is pleasant in appearance and can be sponged without harm to it. We seldom now see the walls of a staircase panelled out in plaster. It has a good architectural character, and it is astonishing what can be done with a few hundreds of feet of wood moulding judiciously disposed on the walls. It is tedious making a drawing of the four sides of the stairs, so the best plan is to set out the panels on the walls with a piece of chalk. Everything above dado level can then be distempered. Duresco is a good material for the purpose, using the petrifying solution supplied with it. It is more expensive than ordinary distemper, coming between that and oil paint, but has the merit, when hardened, of being to some extent washable, and it is much less liable to discoloration from defects in the walls than ordinary distemper. It is also pleasant in appearance. The treatment of the walls of stairs suggested applies rather to old than new buildings. In considering

THE HORIZONTAL DIVISIONS OF THE WALLS

of a room, I have in mind the ordinary house, with rooms from 10ft. to 12ft. from floor to ceiling. The necessary skirting, if with about 6in. of plain face, is generally sufficient if of good thickness, with simple moulding receding to the wall, thickness rather than height being required; this will keep the furniture away from the walls without considering what is called the chair-rail, which should in most cases be lower than the back of a chair—from 2ft. 6in. to 2ft. 9in. to the top of it. The space between these two is best of wood, the face of it projected somewhat from the face of the upper wall. The skirting, plain or panelled, face and rail, should either be of one colour or of harmonising colours of the same depth of tone; to cut it up into thin lines is a mistake. Above this the wall may be plain and uninterrupted up to the frieze-rail. This with the frieze and cornice, about one-seventh the height of the room, should all be designed together and kept to about the same tone of colour, of sufficient weight to look like a part

of the wall. In designing these mouldings, mould the top of those below the eye and the bottoms of those above the eye. Another division as to height is to increase the frieze with rail and cornice to about one-fifth of the height of the room, giving the extra space to the frieze, and, if the room is very low, sacrificing or squeezing the dado. In a drawing-room this plan will be found convenient, as pictures being generally small will not look well skied, and

THE ORNAMENTAL FRIEZE

furnishes and gives interest to the upper part of the wall. If there is height enough, the cornice mouldings of the treatment last described can be moderated in size to form the starting of a cove or hollow, connecting it with other mouldings to form the frame of the ceiling. The cove, so very general in the French work of the last century, is very much out of fashion, but is undoubtedly very serviceable in preventing the disruption between the decoration and walls and ceiling. If there is not height enough for a cove, the cornice kept down a few inches from the flat of the ceiling will give an opportunity of adding recessing mouldings, and preventing the sagging appearance of an absolutely flat ceiling. For bedrooms, the deep frieze arrangement is very suitable, either with or without the dado, according to the height of the room. It is a good plan, when arranging window-casings and architraves, to break the cornice out so as to form a boxing for the top of the curtains. The breaks have a good appearance, give good shadows falling on the curved surface of the curtains, and prevent the accumulation of dust.

(To be continued.)

BRICKWORK TESTS.

THE tabulated statements appearing on this page were submitted at the meeting of the R.I.B.A. on the 13th inst., when the third report on brickwork tests was presented by the Committee. Table A has been prepared by the Committee, and B by Professor Unwin in order to explain his criticism of the tests as carried out. His table refers to all three stages of the experiments, while that of the Committee deals only with the third of the series. Professor Unwin's contention is that there has not been an exact supervision of the quantities of sand and lime used in the mortar, which was employed for erecting the walls upon which the tests were made. He attributes the difference in the results of the tests to this circumstance, and, therefore, emphasizes the importance of considering them in the form shown in his table, as a more simplified method of viewing the whole series of experiments. The committee state that they obtained these figures by taking one-fifth of the crushing load which they had observed, but Professor Unwin urges that that should not apply to piers less than three months old, because, in a great many cases, it is not the strength at three months but at one month that should be considered in brickwork tests.

The St. Bride's Press, Ltd., are about to publish a book by Mr. Sydney Perks, A.R.I.B.A., P.A.S.I., entitled "Party Structures," dealing with Part VIII. of the London Building Act, 1894, and party wall procedure generally. The work will be found very useful to architects and others, as it will include a report of all important legal decisions to date.

L.C.C.

ALTERATIONS IN CONTRACT CONDITIONS.

CONTRACTORS for London County Council work will be interested in a series of alterations in the conditions for contracting, that received the confirmation of the Council at a recent meeting. The General Purposes Committee submitted the report upon the proposed changes, and the first recommendation dealt with the clause compelling the contractor to observe "the rates of wages and hours of labour recognised and in practice obtained by the various trade unions," which they proposed should read: "the rates of wages recognized by associations of employers and in practice obtained by the trade unions."—This was agreed to.—The Committee further recommended that the radius within which the Council's regulations as to wages and hours of labour operated should be 12 miles in a straight line from Charing Cross, instead of 20 miles as previously.—Mr. Burns, M.P., moved as an amendment that the recommendation should be referred back. He said the existing arrangements had worked satisfactorily for the past five or six years, and no valid reason had yet been brought forward for the alteration now proposed.—Mr. Crooks seconded the amendment.—Sir Arthur Arnold urged the adoption of the recommendation on the ground that it established, as the existing rule destroyed, that which had been the policy of the Council—namely, to follow the trade unions and their employers, and not to fix the rate of wages itself. Because the recommendation followed exactly the rule adopted by the

A.—THIRD SERIES—CRUSHING LOADS IN TONS PER SQUARE FOOT.

	Stocks.			Gault.			Fletton.			Leicester Red.			Stafford Blue.		
	No.		Average.	No.		Average.	No.		Average.	No.		Average.	No.		Average.
Bricks crushed at			84.27			189.20			220.85			362.10			779.00
Brickwork in Lime at ...	34	17.44		36	31.34		42	30.82		38	45.94		40	118.12	
	35	19.83	18.63	37	30.94	31.14	43	30.54	30.68	39	44.78	45.36	41	110.56	114.34
Brickwork in Cement at	44	39.24		46	51.50		52	54.88		48	80.94		50	139.52	
	45	39.34	39.29	47	51.19	51.34	53	57.63	56.25	49	85.78	83.36	51	131.35	135.43

TABLE PREPARED BY THE INSTITUTE COMMITTEE.

B.—CRUSHING STRENGTH PER SQUARE FOOT.

Mortar.	Age, Months.	Stocks.	Gault.	Fletton.	Leicester Red.	Stafford Blue.
Single Brick	—	84	189	221	362	780
Sand Pier	—	—	—	—	15	—

FIRST SERIES.

Lime	3½	10.4	21.9	—	30.7	74.3
	10	12.5	21.6	—	34.1	73.7
Cement	3½	14.9	17.8	—	58.5	72.8
	10	19.7	30.0	—	50.4	82.5

SECOND SERIES.

Lime	3½	18.3	—	—	—	—
Cement	3½	—	49.6	—	86.4	103.1

THIRD SERIES.

Lime	5	18.6	31.1	30.7	45.4	114.3
Cement	5	39.3	51.3	56.3	83.0	135.4

TABLE PREPARED BY PROFESSOR UNWIN.

Master Builders' Association of London, and the trade unions connected with the building trade, he appealed with confidence to the Council to adopt it.—After further discussion the amendment was lost, and the recommendation of the Committee adopted. The clause in contracts giving the clerk of the Council power to direct the production of "the time and wages sheets and books of the contractor and all other evidence necessary or proper" to show that the stipulations of the Council were being complied with, was altered to read "time and wages books and sheets of the contractor."—Mr. Burns, M.P., moved an unsuccessful amendment to refer this recommendation back. He pointed out that the clause had worked well, and there was no reason why the power of the Council over contractors should be in any way watered down.—The penalty of £3 for a breach of the stipulation by the contractor to produce time and wages books and sheets is to be left out.—The Council further agreed to omit the clause relating to the penalty for a breach of the stipulation as to the schedule list of wages being displayed at the works of the contractor.—A new arbitration clause was also agreed to, embodying the principle that no outside arbitration should take place except after completion of the works. The old form of the clause involved two arbitrations, but under the new clause only one arbitration is provided for.

TAXATION CHARGES ON SITE VALUES.

The Council, at a subsequent meeting, considered a report of the Local Government and Taxation Committee, who amongst other recommendations proposed: (a) That it is advisable that a new source of revenue should be obtained by means of some direct charge upon owners of site values. (b) That this charge be termed "owners' tax." (c) That all persons deriving a revenue, or use equivalent to revenue, from the value of a site, be liable to pay such charge. (d) That the site value of every property be assessed and entered in the valuation list. (e) That the site value be the annual rent which at the time of valuation might reasonably be obtained for the land as a cleared site if let for building by an owner in fee, subject to an equitable reduction in exceptional cases in which the full site value thus defined is not being enjoyed or obtained by any person or persons. (f) That in view of the fact that considerable expense has been incurred from public funds which has largely contributed to the increase of site value, the Royal Commission be asked to recommend that such owners' tax commence at the rate of 6d. in the pound, and rise gradually to such sum as Parliament may determine, and that any increase of burden or expenditure for new services should be equitably shared between the present rate on occupiers and the proposed owners' tax. (g) That any existing or future contract or agreement by which an owner purports to exempt himself from the owners' tax, or to cause it to be paid by any other person in his stead, be invalid. (h) That vacant land and empty property shall be liable to pay the owners' tax upon the site value as appearing in the valuation list.—After discussion, the further consideration of the report was postponed.

THE WORKS DEPARTMENT.

The Finance Committee have presented their statements for the half years ended on March 31st and September 30th last. During the six months terminating in March there were thirteen separate works carried out. The final estimates for all amounted to £24,099 11s. 10d., and the actual cost was £25,563 3s. 3d., showing the total cost above the estimate to be £1463 11s. 5d. The heaviest work was in connection with the Wandle branch sewer, which cost £12,011 3s. 6d.; while the estimate was only £9,665 9s. 2d. It will be seen that but for the difference here shown there would have been a balance on the right side on the other works, most of which cost less than was estimated. The jobbing works done during the same period were of the schedule value (or probable contract value) of £16,758 17s. 2d.; but the actual cost was only £15,869 6s. 6d., being £889 10s. 8d. less. There has been, in fact, a saving of seven per cent. in the jobbing works during the last two years. The statement for the half-year ended September 30th shows that seventeen different works were then completed, several of them of an important character. The total of the final estimate for these works was £171,049 18s. 11d., and the actual cost £192,410 1s. 6d., making a difference of £21,360 2s. 7d. The largest differences are £7923 in the case of the Bexley Asylum (cost £39,230), £2266 for Vauxhall temporary bridge (cost £13,532), £1936 for Whitefriars fire station (cost £22,527), £6646 for the Fulham and Hammersmith sewer (cost £31,014), and £1920 for central works (cost £21,130). The Committee make two observations with regard to the five works which show large excesses of cost over final estimate. First, that at any rate during some portion of the time while these works were in course of execution, the Works Department was undergoing investigation, which was followed by considerable changes in the staff; secondly, that the present manager, Mr. Adams, is not responsible for these works, as they were practically completed before his appointment on February 2nd, 1897. Altogether the works executed by the Works Department since its creation, till September 30th last, were in the final estimates set down at £630,822, while the actual cost has been £655,307.

The tower of Bala College is to be reconstructed at a cost of £960.

IMPROVING A CITY CHURCH.

SOME rather misleading statements have appeared concerning the alterations which it is proposed to make to the churchyard of St. Andrew's-by-the-Wardrobe, Queen Victoria Street. The real facts of the case are as follows:—When Queen Victoria Street was constructed the pavement of the street itself was at such a much lower level than the churchyard of St. Andrew's, that a lofty and singularly ugly retaining wall was built to support the latter, and a very inconvenient flight of steps was carried up to the south doorway—so precipitous as to be dangerous, especially in the case of aged persons. It is now proposed to remedy these evils in the following manner: To the rear of a shop which abuts on the churchyard is a piece of waste land measuring, roughly, a hundred square feet. This is the property of the church, but is of little or no use to its present proprietors, though it would be of considerable value to those who possess the street frontage. Now the owner of the shop in question has offered to purchase this plot of ground, provided that the Ecclesiastical Commissioners will give their consent to the sale. The sum which would be realised by this sale would, with the exception of about one hundred pounds, suffice for the carrying out of

A MUCH-DESIRED IMPROVEMENT.

both to the church and to Queen Victoria Street. The ugly retaining wall, which blocks out the pretty view of the church from the street, would be replaced by a low wall, 2ft. or 3ft. high, crowned by an open railing, the churchyard being gradually brought down to the level of the street by a series of terraces, and the present "breakneck" steps replaced by a double flight arranged far less abruptly. This would certainly be a very ornamental addition to the City, for although the church of St. Andrew is not one of Wren's most brilliant achievements in ecclesiastical Architecture, its well-designed flank and tower, with their ruddy brickwork enlivened by handsome stone-carving, would form a most agreeable contrast to the somewhat monotonous aspect of Queen Victoria Street, if they could only be properly seen from below, which is at present impossible. It is to be hoped that the rector and churchwardens may be supplied with sufficient funds for the purpose. The effect of a church supported upon terraces and approached by well-arranged flights of steps is always attractive, as those know who have in their mind's eye La Trinité de Monti at Rome, St. Vincent de Paul, Paris, or the Cathedral of Gerona in Spain. Although St. Andrew's Church, as we see it at present, dates from after the Great Fire of London, it is the successor of a church whose records can be traced back to the thirteenth century. It did not always bear its present name, but was formerly known as "St. Andrew's, Puddledock"—from a small kind of harbour or creek leading from the Thames. The present title is derived from an ancient palace or tower in which the Royal robes of ceremony were deposited, and in which at times the kings themselves resided. The church was also sometimes described as "St. Andrew's, Baynard's Castle," because it stood close to that ancient fortress. In more modern times the church has been conspicuous for its two eminent rectors, the Rev. W. Romaine, the celebrated preacher—whose beautiful monument by Bacon is one of the chief ornaments of the interior of the building—and the Rev. W. Goode, the founder of the British and Foreign Bible Society, and of the first Sunday school established in the City of London. The interior of St. Andrew's has been elegantly restored by the present rector from designs by Messrs. Bodley, A.R.A., and T. Garner, every object of interest in the building being carefully preserved or replaced.

At a meeting of the Executive Committee of the Swansea Harbour Trust it was resolved to recommend the Trust to spend £100,000 on works authorised by Act of Parliament, including a new lock, measuring 400ft. by 60ft.

Professional Items.

BRADFORD.—Sketch plans have been completed by Messrs. T. H. and F. Healey, of the new church to be built in the parish of St. Andrew's. The style of Architecture proposed to be adopted in the new structure is the late decorated Gothic, verging on perpendicular, and the church is to include a nave, north and south aisles, a chancel on the north side, north and south transepts, a tower at the west end, and vestries for clergy and choir. Seating accommodation is to be provided for about 800 persons. The site has been presented by Mrs. Turner, of Westfield, who has also offered to give £1000 to the building fund and £1400 to the endowment fund, whilst Mr. Turner has promised 2000 guineas to the building fund.

BRISTOL.—The Inland Revenue building in Baldwin Street is completed, and the Scottish Widows' Fund building is just rising above the hoarding. The frontages are in stone with granite bases, and the floors throughout are of coke-breeze concrete, the steel pillars and beams being protected against the action of fire by a concrete or brick casing. In the basement, moreover, are several strong rooms. Light and air are essential requirements for health's sake, and though little valued by the builders of old Bristol, will be more and more studied by the builders of the new. Here particular pains have been taken to secure an ample supply of both throughout. The sanitary arrangements, too, are thought worthy of study, and the most modern appliances will be fitted up. The architects are Messrs. W. Dunn and R. Watson, of 21, King William Street, Strand, London, and Mr. A. J. Beaven, of Dean Lane, Bedfordminster, is the builder.

BRIXTON.—The new Gresham Baptist Chapel, facing Gresham and Barrington Roads, Brixton, has recently been opened for public worship. The former chapel was partially destroyed by fire nearly two years ago, and after some delay in seeking a new site, the building committee decided to pull down what remained, and rebuild on the old site. The foundation stones were laid early in the year. The elevations are in the Italian style of Architecture, and are of yellow malm bricks, with Portland stone dressings. The building consists of a basement for heating purposes; chapel on the ground floor, with entrances from both roads; deacons' and minister's vestries. The seating accommodation is for 475. There are two entrances, and separate staircases to gallery, and also two entrances and staircases to schoolroom, which is placed above the chapel, on either side of which are arranged class-rooms for boys, girls, and infants' kitchen, w.c., lavatories, &c. Messrs. Whitehead and Co., of Clapham Road, are the contractors for the general works; Stuart's Granolithic Co. for the fire-resisting floors, which have been covered with wood blocks by the Westminster Flooring Co.; Messrs. Ward and Co. for the staircases; the Educational Supply Association have executed the seating for both schoolroom and chapel in pitch pine; and the gas arrangements are by Messrs. Sugg and Co. The organ is by Messrs. Samuel and Twyford, and the total cost has been about £5000. The architect is Mr. J. William Stevens, of No. 21, New Bridge-street, E.C.

BURNTISLAND.—About 26 double villas are to be built on the Dick Trust Ground. Messrs. Swanston and Legge, Kirkcaldy and Burntisland, are the architects.

DUBLIN.—The reconstructed Theatre Royal, Dublin, has been opened. The work was entrusted to Messrs. H. and J. Martin. The Hawkins Street frontage has been altered by the erection of a graceful portico on the site of the verandahs that formerly occupied the front of the Leinster Hall. The pediment is supported on light Ionic columns, and is surmounted by an Italian balustrade. This structure, which rises to about half the height

of the frontage, harmonises agreeably with the other portion of the old frontage of the Leinster Hall. What was known as the vestibule of the Leinster Hall has been considerably curtailed, and from this point two splendid marble staircases lead up to the dress circle. The ceiling of this part of the house is a notable piece of emblematic Art, and the painting has been done in exquisite style by an Italian artist. The auditorium is 80ft. in depth by 64ft. in width, and the inside width is 31ft. The stage measures 64ft. square, and the height from the floor to the gridiron roof is 60ft. The front of the tiers is ornamented with a handsome design in fibrous plaster, executed by Messrs. Binns, of Birmingham, this being picked out in gold and colours.

EDINBURGH.—A new school at the corner of East Preston Street and Dalkeith Road has been opened. The building, which is of a Flemish design, presents no special architectural features. It is three stories in height, and contains accommodation for 900 children. The cost of the site was £3538, and the expense of building and furnishing the school was £11,800. It is fitted with hot water of the most perfect system, and fresh air is introduced into the building by passing it over hot-water pipes, and vitiated air taken out of the classrooms by means of large openings.

GATESHEAD.—New School Board offices have been recently erected from designs prepared by Mr. Edwin Bowman, architect, of Newcastle, which were selected in open competition in May, 1896, out of 11 designs submitted, the cost being limited to £3500. The buildings are of red brick with moulded and carved stone dressings, and present a handsome and imposing appearance. The entrance to the various parts of the building is by a stone portico, with stone columns and entablature, into spacious and well-lighted corridors and vestibule from which are entered the various rooms. On the ground floor is placed the general office, a splendid room 44ft. by 19ft., adjoining which is the private office of the Clerk of the Board, book-keepers' room, telephone room, strong room, and waiting room. The attendance officers' rooms are placed at the north end of the building, and have a separate entrance to them as well as communication with the other offices. The first floor is approached by a wide and handsome staircase, and on this floor is placed the Board Room, 35ft. by 26ft. This room is 15ft. high, with panelled plaster ceiling and panelled wood dado. Adjoining the board room is the members' private room, with cloak and retiring rooms thereto. The waiting room, committee room, and other rooms are all contiguous to the Board Room, all of which are entered from a spacious hall on this floor. Lavatories and cloak rooms are provided on each floor, and the sanitary arrangements are of the most modern type. The ventilation of all the rooms has been specially looked after, and all are warmed by hot-water pipes and radiators on the low pressure system, which is supplemented by open fires in each room. In the basement are placed store rooms and the heating chamber. The contract for the buildings was £3482, and has been carried out by Messrs. T. and R. Lamb, of Gateshead, under the personal supervision of the architect, with Mr. Wm. Edington as clerk of the works for the Board.

LEEDS.—A Local Government Board inquiry has been held at the Leeds Town Hall with reference to an application by the Corporation to borrow £15,000 for the purpose of erecting baths in Meanwood Road, on the site lately known as the West Riding football ground. The town clerk stated that the baths were the last of a set of five decided upon by the Corporation some years ago. The area of land to be acquired is 3806 yards, the price being 16s. per yard, and the total expenditure is estimated at £14,366.

LISGRIFIN (IRELAND).—The dedication of the new church at Lisgriffin, in the parish of Buttévant, marked an important event, not only in the history of the diocese of Cloyne but in the Church of Ireland, for the old

thatched chapel that hitherto served the needs of the people of this part of the parish of Buttévant had stood for over two hundred years, and was one of the last relics of the penal days in Ireland. Many are the traditions connected with the primitive structure, of cruciform shape, with its thatched roof, earthen floor, and rudely built stone altar. The new church is of rectangular shape without gallery or transepts, and built of native limestone similar to that used in the old castle of Lisgriffin adjoining. It is a plain, well-finished building in the Gothic style, light and graceful in appearance. It measures 100ft. in length, 30ft. in width, and 40ft. in height to the bell turret. The roof is of pitch pine, and the church is lighted by numerous windows. These are composed of various tints of rolled cathedral glass, with ruby and amber borders, the whole producing a pleasing effect in tone and light. The architect was Mr. Samuel F. Hynes, Cork, and the builder, Mr. Thomas A. Walsh, Charleville and Kilmallock.

LITTLE COGGESHALL.—St. Nicholas' Chapel, Little Coggeshall, Essex, has been reopened and dedicated after restoration. The chapel was built by the monks of the Cistercian Order about 700 years ago. It is of a simple quadri-lateral design, without aisles or transept. It is constructed of rubble consisting principally of flints and fragments of Early English brick, and it is one of the earliest instances, if not the earliest, of moulded brickwork in the kingdom. Many years ago this sacred building was converted into a barn, part of the south wall being removed and a wing attached. This unsightly addition was, however, subsequently demolished, and later restoration commenced. The plans were prepared by Messrs. Bodley and Garner, ecclesiastical architects, and the restoration was carried out by Messrs. Rattee and Kett, of Cambridge. The style of the ancient architecture has been affected as little as possible. The old reed thatch has been taken off, and where it was necessary to supplant the old timbers of the roof by new, the new ones have been made to correspond. The western portion of the roof has been raised to a level with the eastern half, and the whole is covered with old plain tiles. In the same manner the restoration has taken place within and without. The only part left unrestored is the sedilia. The east window (the old moulded brick mullions of which still remain, as they do also in the west window) is of stained glass.

NEWCASTLE.—A new font has been dedicated in St. Thomas's Church, Barras Bridge, Newcastle. The font, which was designed by Mr. Hicks, is of white Caen stone, octagonal in form, and is richly traceried and carved all over. The bowl, of one large block, has its sides slightly concave, and their traceries support shields with symbols and monograms. The font is raised upon a traceried stone platform, with a kneeling step round it. The work has been carried out by Mr. Robert Beale, of Newcastle-on-Tyne.

ST. GEORGE'S (ISLE OF MAN).—The sub-committee appointed by St. George's Church Council to make inquiries and report, in reference to the advisability of restoring or rebuilding St. George's, have held a meeting to examine the plans and estimates. The Lord Bishop thought that, if to make a complete restoration the church had (as he understood had been recommended by the architect) to be absolutely gutted, it would be well to consider whether the outer walls were worth keeping. They had been patched on several occasions, and had no pretence to ecclesiastical Architecture. He believed that more money would be given, and more readily given, for a new church than to renovate the old one. He suggested that the architect might be asked whether it was possible to improve the outer walls, and to give a plan of the elevation. He could see that there was some difference of opinion as to what ought to be done; he would therefore advise the making of further inquiries before attempting to come to any decision. Ultimately a resolution was passed asking the architect to prepare a plan of the elevation of the old church, with any improve-

ments to the outer walls which he could suggest; and to estimate the cost of such improvement. Also to give plan and cost of a new church to be placed on the same site, and to provide like accommodation.

STAUNTON-ON-ARROW.—The church in this parish has been re-opened, after having been closed for a period of ten weeks for restoration. The work has been carried out by Messrs. Smith, of Kidderminster; under the direction of Messrs. Nicholson and Hartree, diocesan architects. It comprises entire re-roofing and other structural renovations and improvement, including a hot-water apparatus.

UPPINGHAM.—New workshops have just been completed for the Uppingham School. The accommodation comprises large metal and carpenters' shops, each with instructor's office, and fitted with every convenience, store, etc. The walls are of stone with freestone dressings, floors of wood block, and open timber roofs are covered with Colleyweston grey slating. New isolation wards for the school sanatorium have also been erected, with four wards, each for two beds, nurses' rooms, bath rooms, kitchen, nurses' bedrooms, etc. The floors are fireproof and the walls are plastered with adamant; all angles rounded. The walls are of stone and the roof is tiled. The dining-room, kitchen, etc., of sanatorium have been enlarged, and new entrance porch erected, also new ambulance house. The workshops have been built by Messrs. Dorman and Scott, and the isolation wards and additions to sanatorium by Mr. W. Dean, from designs, and under the supervision of, Mr. J. B. Corby, architect, Stamford and Uppingham.

THURSO.—A new Post Office is being erected at Thurso (Scotland). The building is not architecturally ambitious, but it is conveniently situated and amply commodious. There is also ample space for its extension, should the future require it. The site has a free vehicular track right around. This of itself will be an advantage in the busy season. The style of frontage has been well chosen by the architect, Mr. Sinclair McDonald, as being in harmony with the Architecture of the locality. The public office is, in round figures, 29ft. by 23ft., while the sorting-room immediately behind is 29ft. by 24ft. The telegraph room is 20ft. by nearly 14ft. Behind this is the Postmaster's room, which is 14ft. by 12ft.; while there are a number of rooms for stores, batteries, retiring rooms for men and women, with every other accommodation that modern science renders indispensable. The whole length of the building taken up by the Post Office is 86ft., while the width is 29ft. 4in.

WHITLETS (AYR).—It is proposed to erect shops and dwelling-house here on plans by Mr. John Macintosh, Galston. The successful contractor is Mr. David Campbell, builder, Ayr, and it is expected the building will be commenced at once. The schedules are by Messrs. Service and Bisland, surveyors, Kilmarnock and Ayr.

WOLVERHAMPTON.—The foundation stone of the new additions to the North Wolverhampton Working Men's Club has been laid. The new additions comprise large reading and smoke rooms and spacious billiard room. The elevation adopted is of a pleasing character, and special attention is being paid to the heating and ventilating of the buildings. The contract is upwards of £900, and has been let to Mr. Benjamin Guest, of Wolverhampton, and the whole of the work is being carried out from the designs and under the supervision of Mr. J. Mason, architect, Wolverhampton.

WORKINGTON.—The Workington Town Council has resolved to contribute £100,000 towards the cost of the construction of a new deep water dock on the south side of the existing harbour. Lord Lonsdale's interests are to be bought out, and traders connected with Cammell's, Moss Bay, Lowther, and Workington hematite works are pledged to contribute not less than £75,000. The estimated cost of the dock is £300,000. A bill will be deposited in the next session of Parliament.

Correspondence.

MR. R. STEPHEN AYLING.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Recently a circular relative to one of our publications has been sent to members of the architectural profession. The illustrator, Mr. R. Stephen Ayling, is described as a gold medallist of the Royal Academy, and by his desire we beg to state that this is a clerical error. The position Mr. Ayling holds is that of silver medallist. Will you kindly allow us to trespass upon your space by inserting this letter in your next issue?—Yours truly,
E. AND F. N. SPON, LIMITED.

THE GROWTH OF TREES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—As in the course of business I have had considerable experience in the felling of English timber, it may be of interest to your readers to know some of the theories which have occurred to me by observation in regard to the growth of it, particularly as to the specific queries of your recent correspondent.

His first query is well answered by yourself, but I should add that the vertical growth of the cells is much more, proportionally, than the lateral growth; with this remarkable point, the vertical growth continues long after the lateral growth has ceased. And passing to the second query, this vertical growth is fed from the outside sap wood or alburnum, through each successive medullary ray.

My theory as to the course of the sap is that it passes up the cambium layer and the exterior alburnum, then laterally through it into the duramen, the excess descending through the heart of the tree into the "tap" root, which grows into the earth of a different nature to the other roots, apparently fed by the return sap, robbed of its salts in a measure, and of a nature suitable to its purpose.

When sawing down elms I have often had them bored with an augur about 1ft. above the crown of the tap root previous to cutting, and, if felled about December, have extracted perhaps a bucket of sap from one tree, which runs from the centre of it. This is, I believe, the sustaining fluid for the growth of the tap root during the winter. The amount of sap in the cambium layer not absorbed through the alburnum into the duramen, I think, is partially taken up by the astringency of the bark, and the surplus passes again to the roots to feed their growth during the winter.

Briefly, my theory by this is: that in the summer the tree is growing while the roots feed it, and in the winter the roots are growing fed by the tree, as I have shown it.—Yours truly,
EXPERIENTIA.

Dec., 1897.

A SUBSCRIBER.—We shall be pleased to see your illustration of the gateway tower at Lancaster Castle.

THE INSTITUTE EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I read with great interest your recent leader on "Some Anticipated Regrets," and should like to be allowed to make a few remarks thereon. Having the honour to be a member of the Institute, I wish to protest against what I consider to be "B.C.'s" exaggerated ideas of the evils of the examination system, and should like to remind him, what has been pointed out over and over again, that the Institute does not profess to examine in Art, but merely in those branches of Architecture which it is essential for an architect to know. In my opinion, the examination is a great help to young architects, as it requires from them a certain amount of knowledge to be gained, and therefore stimulates them to study and industry, which might not be the case if they were left to their own devices, and if they possess the artistic instinct (which everyone studying for an architect ought to possess), it will be trained and strengthened

by a proper study of the past styles of Architecture, and in this manner will enable them to design with power. As Dr. Collins pointed out at the Institute dinner the other night: "Architecture had been described as frozen music," or harmony crystallised into form." If one wanted to be a musician or a composer, no matter how great a genius he is, he must start with the scales and study harmony, counterpoint, &c., before he can compose. The same applies to Architecture. As Architecture is a constructive Art—or the Art and science of building beautifully—and not a purely artistic calling, like that of painting, I have come to the conclusion that, however much architects may differ in their ideas as to their professional education, registration is the only remedy. This would, of course, mean a qualifying examination. In these days of keen competition, nearly every profession is protected, and one can only wonder that all architects do not recognise the great value of this, as it would raise the status of the Profession considerably, and would also prevent outsiders from calling themselves architects; we should also not be so subject to the many insulting conditions issued by ignorant competition committees.—Apologising for trespassing on your valuable space, I am, yours faithfully,
ERNEST R. DANFORD.

116, Sydenham Road, Croydon, Dec. 11th.

Enquiry Department.

FELLOWSHIP OF THE SANITARY INSTITUTE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you let me know the requirements of the Sanitary Institute, to become a Fellow?—Yours faithfully,
J. L.

Fellows of the Sanitary Institute are elected by the Council from the members of at least one year's standing, on one or other of the following grounds: 1. That he is an eminent man of science; 2. That he is a person of distinction as a legislator or an administrator; 3. That he is a person who has done noteworthy sanitary work. On election, Fellows pay a fee of five guineas. Donors of £1000 to the Institute are also eligible as Fellows. Every person recommended for admission as a Fellow must be proposed and recommended in the form prescribed by the Council, which form must be subscribed by at least three Fellows, one of whom must sign from personal knowledge of the person recommended. Form "B" is the one required for the nomination of a Fellow. For honorary Fellowship, foreigners distinguished in connection with sanitary science can be elected by the Council. Honorary Fellows are not corporate members of the Institute, however.

CHIMNEY SHAFTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you inform me, through your enquiry column, the rule used for obtaining thickness of walls, &c., and proper balter for a chimney shaft, say 350ft. high, and give sketch of best section for same. Trusting you can help a puzzled student,
SHAFTS.

It would be difficult to find more concise or correct information about the erection of chimney shafts than that contained in Section 65 of the London Building Act, 1894. The taper is there regulated to be not less than 2½in. in every 10ft. of height, while the thickness of the brickwork at the top of the shaft and for 20ft. below is fixed at 8½in. at least, this to be increased at least one half brick for every additional 20ft. measured downwards. A section of a shaft of 160ft. high, designed by Mr. C. S. Peach, is to be found in "Stresses and Thrusts," published by Batsford. The chapter in which it occurs is worth reading, as is the whole of the section of the Building Act mentioned above.

A HANDSOME figure memorial of the late Sir Augustus Harris has been placed in position in Brompton Cemetery.

Under Discussion.

THE WINTER SESSION.

THE ARCHITECTURAL TREATMENT OF GABLES.

A meeting of the Glasgow Architectural Association was held on Tuesday, the 7th inst., the president, Mr. W. T. Conner, in the chair. Mr. Alex. Wingate read a paper, entitled "The Architectural Treatment of Gables." The lecturer confined himself to treating the subject in a general historical manner, tracing the development of the gable through its different phases from the Greek tympanum to the variable quantity of the present day.

BYZANTINE CHURCHES.

Mr. Sydney D. Kitson delivered a lecture to members of the Leeds and Yorkshire Architectural Society, on the 13th inst., in the Leeds Institute of Science, Art, and Literature, the subject being "Some Byzantine Churches in Greece." Mr. George Corson (president) occupied the chair. Byzantine Art, Mr. Kitson said, was connected with the youth of Christianity, and had maintained its traditions to the present day. Many lessons were to be learned from it—lessons of construction and design. He went on to describe some of the mediæval churches of Greece, most of which, being small, had been almost entirely disregarded by travellers. The builders of the old Byzantine churches, Mr. Kitson remarked, did not strive after effect; they knew that by expressing themselves truthfully they would obtain a beautiful building.

MODEL DWELLINGS AT DEPTFORD.

On Saturday, December 10th, the Goldsmith's Institute Building and Architectural Society paid a visit to the several blocks of model dwellings being erected in Deptford for the South Eastern Railway Company. The site, adjoining a canal, is extremely convenient for the carriage of the necessary materials, which are unloaded from the barges and placed in trucks running on light rails, and thus conveyed to any part of the site as desired. The dwellings are being erected to house the people that will be displaced by the widening of the Company's line between New Cross and London, the number to be accommodated being 1080. The site being made-up ground, it was found necessary to carry the foundations to a considerable depth, this being executed by concrete piers every 7ft. or 8ft., over which arches were turned of the same material. The site is divided up into seven blocks, having some 40ft. between them, thus securing ample air space and light. The blocks are planned on the two and three-roomed tenement system; the two-roomed tenements consisting of a living-room, bedroom, kitchen, scullery, and w.c., this meeting the requirements of a family of four. The buildings throughout are constructed of fire-resisting materials, the floors and roofs being composed of coke-breeze concrete, carried by steel girders, the roofs being rendered watertight by a double layer of asphalt. Easy access has been made to the roof, so that it can be used for a drying or playground. The staircases are built with glazed bricks, the steps being Stuart's Granolithic material, specially moulded. On each landing is fixed a hopper which is connected by a shoot with a movable receptacle for house refuse on the ground floor, thus doing away with the necessity of carrying the refuse down the stairs. Special attention has been paid to ventilation and other sanitary arrangements, and no trouble has been spared to make a comfortable home for those who are to occupy the tenements. The dwellings are the design of Messrs. Humphrey and Davies, and are being erected under the superintendence of Mr. Jenkins, the clerk of works. The afternoon's visit terminated by passing a hearty vote of thanks to the architects for permission to view the dwellings, and to Mr. Jenkins for conducting the party round and supplying much interesting information.

ART METAL WORK.

"Art Metal Work in the Black Country" was the subject of an interesting address, delivered to the Dudley Literary Society, by Mr. James Smellie. The craftsman of the future, said the speaker, must also be a designer, or at least he must be acquainted with the rudiments of art. This he considered was the great secret of the much-talked-of German competition. Technical schools are all very well, but art schools must be combined with them if any really important results are to be achieved. "If," said Mr. Smellie, "Dudley, Halesowen, and the district had been in Germany, they would have had a combined Art and Technical School erected by the State and equipped with all the most modern and scientific apparatus for the teaching of Art metal work and all other trades which would benefit the town, the district, and the country."

WARMING OF PUBLIC BUILDINGS.

The monthly meeting of the Sheffield Society of Architects and Surveyors was held on the 14th inst. The president, Mr. R. W. Fowler, F.S.I., occupied the chair. Mr. F. R. Farrow, F.R.I.B.A., of London, delivered a lecture on "The Warming of Public Buildings." After some introductory remarks, defining the class of buildings included under the term "Public," the lecturer proceeded to describe the various methods adopted in the warming of public buildings, first of all treating the hot air systems and the objections to them, then the general principles and methods of heating by low pressure warm water and high pressure hot water, together with their respective advantages and disadvantages, describing in detail the arrangements and materials of the pipes used in each case. The lecturer also dealt with the various methods employed in the use of steam for heating public buildings by means of low pressure, high pressure, and exhaust steam, with the merits and defects of each; pointing out the various classes of buildings to which these methods are especially applicable. Each system was shown to have its own particular merit and peculiar suitability to certain classes of buildings, it being pointed out that there is no one system which is universally superior to all others, nor even successfully applicable in every case. Having dealt with general principles, the details of various fittings and apparatus were explained, the several types of radiators and their methods of employment, the different kinds of boilers with the particular purposes for which they are best suited, the forms and uses of stop valves, steam traps, and other minor but important features. Questions involved in the calculations necessary to determine the heating power and apparatus required for different buildings were then explained, and the criterion of efficiency determined. The lecture concluded with an exhibition and explanation of plans.

GIRDERS.

Lecturing to the Northern Architectural Association on the subject of girders, Mr. W. S. Vaughan, C.E.M.E., first described the various kinds by the technical expressions, and then went on to refer to the stress, strain, and four major strains. Their powers of compression, tension, shearing torsion, and modules and limit of elasticity were all well defined. By the aid of models and black-board sketches he illustrated the bending moment, the neutral axis and neutral surfaces, and compared the results with ordinary girders. He next gave a mathematical description of the magnitude of stresses, and alluded in detail to the designing of girders, comparing the material to be used, emphasising the importance of viewing it from a safety point of view. Examples of well and badly designed girders, flitch plates, etc., were illustrated, and the lecturer explained how a maximum of strength could be obtained with a minimum of material. In conclusion, he dealt with the manufacture of steel, comparing the several kinds, and also drew a comparison between the weights of girders of equal strength in steel, wrought-iron, and cast-iron. After the lecture Mr. Vaughan presented the models to the Association.

Trade and Craft.

A NEW ARTIFICIAL STONE.

A large party of architects and builders visited Worplesdon, near Woking, the other day for the purpose of inspecting a new process of manufacturing artificial stone, which has been patented. The stone is formed in steel moulds, which can be adjusted to any size, shape, or design for which the finished stone may be required, but so far as was visible solid blocks of several hundredweights in weight were most easily produced. The object of the inventor appears to have been to compass the results which have been attained by nature in the course of many centuries in a few days, and it has even been claimed for the new invention that it is really only a rediscovery of the secret which enabled the enormous blocks of the Pyramids, the Great Sphinx, and the various obelisks which have become familiar to us in Cleopatra's Needle and other monoliths, to be erected in the midst of a desert of sand. Owen stone, so called after the inventor, is prepared by a mixture of sand of the Bagshot variety, which exists in large quantities in the neighbourhood of the works, and lime, the mixture being effected by a carefully regulated process, and subsequently submitted to hydraulic pressure in specially constructed cylinders. The process occupies about three days from the packing of the cylinder to the withdrawal of the moulds. Time alone will show whether the imitation will stand the same wear and tear which the natural product has survived, and it would be unfair either to praise or to condemn the output of the invention which was submitted to inspection, but this much may be said, that, comparing the Owen stone with previous imitations, it shows a closer grain and a greater facility for working which should commend it for building purposes. It is said to cost much less than Portland stone, and to have less tendency to splinter. Extreme changes of heat and cold have been tried on it without producing any appreciable results.

TRAMWAY CONSTRUCTION.

The Secretary of State for Foreign Affairs has received a despatch from Her Majesty's Consul at Bilbao, reporting that the Provisional Board appointed in connection with the electric tramway which it is proposed to lay from Zumarraga to Zumaya, in the province of Guipuzcoa, invite plans and tenders, to be received by February 28th, for the construction and equipment of the line. Further particulars of the conditions of the tenders for the above-named tram line and branch, which together measure thirty miles, may be inspected at the Commercial Department of the Foreign Office any day between the hours of 11 and 6.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—Accepted for school and teachers' house, Banchory Devenich, Aberdeen:—
Masonry.—Jas. Reid, Banchory Devenich, Aberdeen.
Carpentry.—R. Thompson and Sons, Bourtreesbush, Aberdeen.
Slating.—George Currie, Aberdeen.
Plastering.—Alex. Ross, Aberdeen.
Plumbing.—J. F. Anderson, Aberdeen.
Painting.—D. M. McLennan-Oults, Aberdeen.
FOLKESTONE.—For the supply of 1,000 yds. super York stone paving flags, for the Corporation. Mr. John White, Borough engineer, Town Hall, Folkestone.
Thos. Turner & Sons Es. Od. L. Somerfeld 7s. 5d.
Wm. Griffiths 7s. 10d. Saml. Trickett & Sons 7s. 6d.
J. Brooke and Sons 7s. 5d. A. and F. Manuelle 7s. 6d.
The Southwam Stone Co., Ltd. 7s. 4d. Bradford 6s. 11d.
* Accepted.

HAMPTON-ON-THAMES.—For the erection of a pair of semi-detached villas, Nursery-road, for Mr. J. J. Draper. Mr. F. G. Hughes, architect, Hampton-on-Thames:—
J. Singleton & Sons £1,128 0 J. Richardson 1,060 0
D. McDonald & Sons 1,080 0 J. Wright, Hampton* 830 0
H. March 945 16
* Accepted.

HANDY CROSS (near Gt. Marlow).—For erecting a new hotel for Messrs. Thomas Hughes and Sons. Mr. Jas. H. Deacon, architect, Gt. Marlow:—
W. Harding 2,895 0 0 H. Harris 2,761 12 6
W. Lunnon 780 0 0 J. S. Carter* 697 0 0
* Accepted.

HERTFORD.—For paving, metalling, channelling and lighting Railway-place, for the Hertford Corporation. Mr. J. H. Jevons, Borough Surveyor, Hertford:—
Cathy 2,518 11 Norris 4,470

KIRBY MUXLOE (Leicester).—For the erection of six houses and outbuildings. Messrs. Miles and Beasley, architects and surveyors, Friar-lane, Leicester:—
Urban Gurney, Leicester (accepted) £1,200

LLANDRINDOD WELLS.—For the extension of the sewerage system, for the Urban District Council. Mr. H. L. Bamford, surveyor, Hereford:—
Ford and Hudson, Coal. John Langford* 2,830
vile* 410
* Accepted.

LLANGUNEOCKE (Wales).—Accepted for additions, &c., to school buildings, for the School Board. Mr. W. Watkin Williams, architect, 63, Wind-street, Swansea:—
Dd. Rees, Ystalyfera £1,306

LITHERLAND (Lanes).—For completing Seymour-road for the Urban District Council. Mr. W. B. Garton, surveyor, Sefton-road, Litherland:—
Keating and Sons 288 12 2 Executors of W. F. Chaddock 262 6 0
Peter Palmer 69 0 0 John McCabe, South- 262 6 0
Thos. Horrocks 642 13 11 port-rd., Ormskirk* 579 9 6
Surveyor's estimate, 464 8s. 6d.
* Accepted.

LONDON.—For erecting new general offices for the Metropolitan District Railway Company at the St. James's Park Station, Westminster. Mr. Henry L. Florence, architect:—
Quantities by Mr. James Francis Bull £15,486
Colls and Sons £18,500 Kirby and Gayford £15,416
John Mowlem and Co. 15,000 W. Cubitt and Co.* 15,416
Ash y and Horner 15,788
* Accepted.

LONDON.—For heating Rutland-street School, for the London School Board. Mr. T. J. Bailey, architect:—
G. Davis 2,800 0 H. C. Price Lea & Co. £140 0
Strode and 187 0 Vaughan and Brown, 146 0
W. G. Cannon and 160 0 J. Esson 145 0
Sons 158 10 J. F. Clarke & Sons* 134 0
Stevens and Sons
* Recommended for acceptance.

LONDON.—For the rebuilding of manufacturing premises at No. 87, City-road, E.C., for Messrs. Sheath Bros. Mr. Alfred J. Martin, architect, No. 386, Old-street, E.C. Quantities supplied by Messrs. Heells and Wrightson, surveyors:—
Heaps 22,395 5 Scrivener & Co. 22,112
Dearing and Son 2,313 Regent's Park* 22,112
Stimpson and Co. 2,307 Chessum and Sons† 2,096
Jarvis and Sons 2,276
* Amended tender accepted. † Withdrawn.

LONDON.—For the erection of bath-rooms, the provision of fireproof staircases, &c., and generally repairing and re-decorating Nos. 28 to 60 (inclusive), Sidney-road, Homerton, to adapt for children's homes, for the Guardians of the Hackney Union. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C.:—
Lambie 23,493 Barrett and Power* 23,387
Freeman and Son 3,400 Silk 8,253
Harris 3,397 Irwin 8,027
West 8,839
* Accepted.

LONDON.—For pulling down and rebuilding "The Royal Oak," Bromley-by-Bow, E. Messrs. Foulsham and Herbert Riches, joint architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—
P. Hart £1,530 T. Osborn and Sons £1,285
S. Salt 1,843 J. Edmunds 1,280
A. J. Sheffield 1,290 J. T. Roby* 1,253
* Accepted.

LONDON.—For heating Haseldine-road School, for the London School Board. Mr. T. J. Bailey, architect:—
G. Davis 2,190 0 J. and F. May 239 10
Purcell and Nobbs 1,745 0 J. C. J. Ellis, Ltd.* 510 10
NEATH.—For the erection of schools, Herbert-road, Melncrythan, for the Llantwit Lower School Board. Mr. J. Cook Rees, architect, St. Thomas-chambers, Church-place, Neath. Quantities by architect:—
Lloyd Bros. £6,344 0 0 Beynon, Thomas, and Rees £5,788 10 0
Elias Morgan 6,333 10 8 Burnett Bros. 5,635 0 0
Thomas Watkins 6,283 0 0 Thomas Walters 5,558 10 0
and Co. 5,990 0 0 Walters & Johns 5,490 0 0
Watkin Williams 5,899 0 0 William Thomas 5,347 11 9
David Jenkins 5,790 0 0 D. W. Rosser 5,320 0 0
Evan Thomas 5,750 0 0 Billings Bros. 5,295 0 0
John Davies 5,750 0 0 A. George, Neath* 5,216 0 0
Gustavus Bros. 5,750 0 0
Architect's estimate, £5,337.
* Accepted.

NORTHAMPTON.—For the rebuilding of the "Bantam Cock" Inn, Abington-square, for Mr. F. Perkins. Mr. F. Foster, architect, Leamington. Quantities by the architect:—
House. Stables. Total.
J. Dunkley £1,731 12 6 434 5 6 £2,072 18 0
W. Throssall 1,745 0 0 395 0 0 2,045 0 0
F. Harper 1,686 0 0 345 10 0 2,031 10 0
G. J. Fisher 1,630 0 0 307 0 0 1,937 0 0
A. J. Chown 1,560 0 0 320 0 0 1,880 0 0
Woodford & Smith 1,550 0 0 320 0 0 1,870 0 0
Wingrove & Stanley 1,534 0 0 311 0 0 1,845 0 0
W. Heap 1,639 0 0 298 0 0 1,830 0 0
Architect's estimate 1,500 0 0 350 0 0 1,850 0 0
[All of Northampton.]
* Accepted.

OLD TRAFFORD.—For the erection of buildings for a refuse destructor and sanitary works at Old Trafford, for the Streftford Urban District Council. Mr. J. Bowden, architect, 14, Ridgefield, Manchester:—
Wm. Southern & Sons £2,350 A. J. Cottle £3,116
Wm. Thorpe 3,157 Sam. Warburton, Lord- 2,727
Chas. Bradbrook 3,182 street, Miles Plat-
Jas. Byrom 3,150 ting (accepted)

"EMPRESS" SMOKE CURE.

The "Empress" Smoke Cure has held its ground with countless i.crea ing sales for many years, and is now widely recognised as the best chimney pot.

Full Particulars of Sizes, Prices, &c., on application to the Makers—

EWART & SON,
346, Euston Road,
LONDON N.W.
ESTABLISHED 60 YEARS.



LONDON.—Accepted for erecting shop, bakery, and stables, for the Wood Green Co-operative Society. Mr. Henry Stone, architect, 28, John-street, Bedford-row. —
General Builders, Limited £2,400
LONDON.—For the erection of new cabinet factories at No. 9, Hoxton-square, N., for Mr. T. Watson Cratt. Mr. Alfred J. Martin, architect, No. 38, Old-street, E.C.
Quantities by Messrs. Heells and Wrightson, surveyors:—
Thomson and Son £3,685 0 Chessum and Sons £2,648 0
Stimpson and Co. 3,140 0 Brown and Harris 2,599 16
Holloway Bros. 3,130 0 Goodall, Stoke New-
Jarvis and Sons 2,780 0 ington* 2,231 0
Fortescue 2,694 0
* Amended tender accepted.

LONDON.—For alterations and additions to No. 252 and 254, North End-road, Fulham, S.W., for Mr. F. N. Vivian. Mr. E. Ide, architect, 19, Cockspur-street, S.W.:—
Paddison £707 6 General Builders,
Wilkes Bros. 588 0 Lim.* 2500 0
Drake 561 2 Holdstock 494 0
* Accepted, subject to modifications.
LONDON.—For building boundary walls, and laying out the exercise grounds at the Hackney Infirmary, Homerton, N.E., for the Guardians of the Hackney Union. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C.:—
Barrett and Power £5,300 Lambie (accepted) £4,073
Davenport 4,572 Clift Ford 3,990
Shumner 4,539 Liddiard 3,900

LONDON.—Accepted for altering and refitting bars, &c., at the "Beaconsfield Hotel," Green-lanes, Tottenham, for Mr. G. G. Garland. Mr. J. E. Pinder, architect, Bridge House, South Tottenham, N.:—
H. Knight and Son, Tottenham £2,553
SALTBURN-BY-SEA.—For the construction of drainage works, for the Urban District Council. Mr. R. A. Jackson, C.E., Council Offices, Milton-street, Saltburn-by-Sea. Quantities by engineer:—
Thomas Dickinson £2,838 3 0
Thomas Parr 2,554 14 0
John G. Spooner 1,966 15 0
Thomas Pearson 1,555 18 6
John Carriek, Durham (accepted) 1,451 10 0
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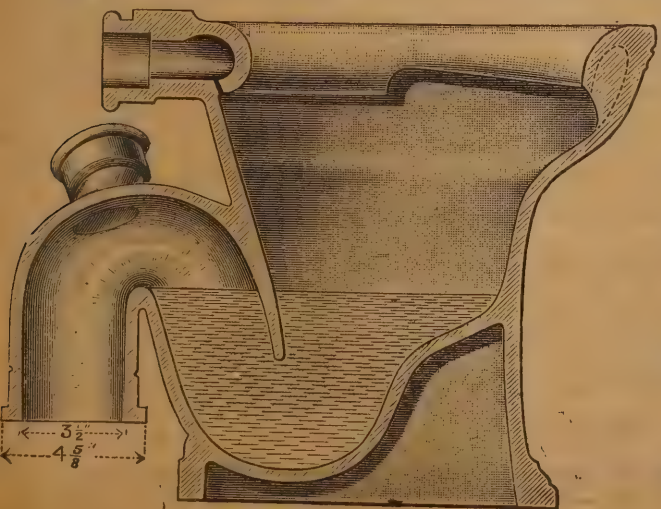
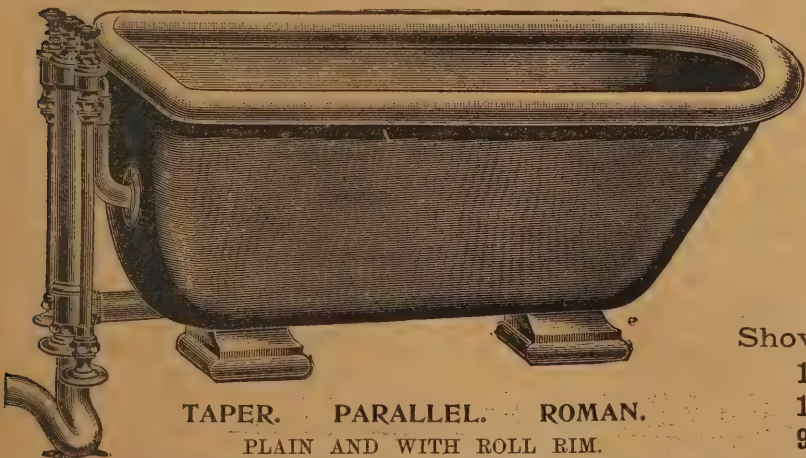
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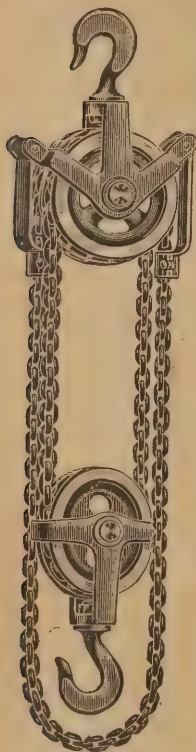
SHERINGHAM.—For the erection of villas at Sheringham, for Mr. W. F. Pentreath, Messrs. Waits and Carter, architects and surveyors, Sheringham and Cromer:—
G. A. Laws £953 0 | Blyth and Son* £750 0
Daws and Son 879 0 | J. W. Weston 747 14
Bird and Sadler 845 0 | R. G. Payne 720 0
* Accepted.

SNARESBROOK.—For the erection of a detached house, Woodwork-road, Snarebrook, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, E.C. :—
H. W. Tavener £1,884 0
W. Mundy 1,880 0 | J. Joliffe (accepted) 1,780 0

STOCKPORT.—For the execution of sewerage works, Bramhall, &c., for the Rural District Council. Mr. H. H. Turner, surveyor, Workhouse, Stockport:—

Contract No. 1.	Contract No. 2.
A. Taylor £7,824 15 10	£9,608 1 9
G. Bell 8,618 17 5	9,159 8 6
J. and J. Lee 6,812 0 0	8,700 0 0
A. Kellett 7,881 5 2	8,997 6 0
P. Smith 8,213 2 9	9,810 1 9
Naylor and Sons 6,982 13 8	10,481 8 8
Underwood and Bro. 7,230 0 0	8,220 0 0
T. and W. Meadows 8,303 0 0	9,065 0 0
H. Lomas, Stockport* 6,799 0 0	7,999 0 0

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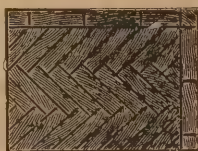
STOCKPORT.—For excavating, sewerage, forming, &c., Basil-street and others in the borough, for the Corporation, Mr. John Atkinson, C.E., borough surveyor, St. Petersgate, Stockport:—
Worthington P. D. T. D.
Pownall £1,809 1 9 | Hayes, Stockport (accepted) £1,609 3 11
W. Briscoe & Sons 1,663 7 10

STOCKPORT.—For excavating, sewerage, forming, &c., Kennerley Grove-lane, for the Rural District Council. Mr. John Atkinson, C.E., borough surveyor, St. Petersgate, Stockport:—
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Pownall £2,878 14 6 | Hayes, Stockport (accepted) £2,278 14 0
Allen Taylor 2,502 2 11

THORNTON LEES.—Accepted for the erection of three shops and two houses, Thornton Lees, near Dewsbury. Horace E. Priestley, architect and land surveyor, Bradford:—
Joiner.—F. Dixon, Thornhill £539 0
Plaster.—S. Johnson and Son, Mirfield 45 0
Plaster.—Chas Goodall, Dewsbury 78 10
Plumber.—F. Newsome, Dewsbury 61 10
Painter.—N. Ramsden, Dewsbury 12 10

WORKING.—For the erection of public offices, for the Urban District Council. Mr. G. J. Wooldridge, surveyor, Bank-chambers, Woking. Quantities by Mr. W. Davis, Falcon-court, Fleet-street, London:—
Greory Bros. £6,921 | P. Peters and Son £5,672
W. Watson 5,000 | A. A. Gale 5,604
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Heineman and Brown 5,863 | J. Harris and Son 5,600
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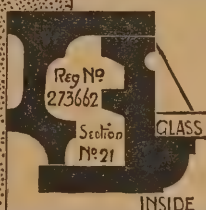
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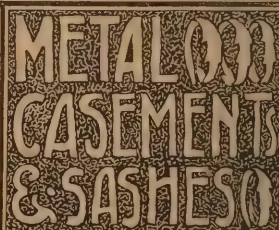
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Surveying and Sanitary SUPPLEMENT.

DECEMBER 22ND, 1897.

MODERN SANITATION.

By H. A. SAUL.

(Continued from page ix.)

No. VI. — ANTI-SYPHONAGE.

THE accompanying diagrams (Figs. 1 and 2) are intended to be explanatory of the clause from the London County Council bye-laws which terminated the last article, and which related to the ventilation of the traps of w.c.'s which were in connection with other w.c.'s.

Fig. 1 is a section through the outside wall of a building, showing the w.c.'s on two floors connected to the same soil pipe without ventilation to the traps. This was once the usual arrangement, and is so still in many instances, with the following very frequent result. When the upper closet has been flushed, the matter driven into the soil pipe assumes a bulk somewhat as at *a*. This, in its passage across the junction of the branch from the lower w.c. B, syphons out some of the air from the branch, causing the water seal in the pan to be forced in by the natural pressure of air from without, to a level below the dip of the trap, as at *b*. The better the flush from A, the more serious are the consequences to B. Hence arose the necessity of providing a vent through which air might flow to satisfy the demands of syphonage and leave the water seal undisturbed. Such vents are now made to nearly all forms of w.c. apparatus in one piece with the top of the outgo of the trap, as at *c*.

Fig. 2 shows the same w.c.'s, but with the addition of the proper ventilating arrangements. The ventilating, or, as it is more frequently—for the sake of better distinction—called, the *anti-syphonage pipe*, may be carried up through the roof independently of the soil pipe, or may be connected therewith at its upper part, as may be considered most convenient, although the latter method is usually found to be possible, and is more economical than the former.

If this pipe be considered merely as an anti-syphonage, the connection with the trap of the upper w.c. may seem superfluous, as its position gives it an immunity from syphonage owing to the open top of the soil pipe. It must not be looked at entirely from this point however, but also as a ventilator of the branch pipe between the apparatus and the soil pipe, acting in the same way and for similar reasons as the vent of the sink waste described in Article 3.

It is a common practice to cause the wastes from baths, lavatory basins, &c., situated upon the upper floors, to discharge into an ordinary

rain water head, and inferentially this method is the one which was adopted with the small houses which have been already considered. Although this is all that can be usually afforded in property where cost is a great consideration, it cannot in any way be considered as ideal, as soapy water soon renders pipes more or less foul, and it is rarely possible to place the rain water head so far from a window, that smell—which if not absolutely dangerous, is not to be desired—shall not be able to make itself known through an open window. Besides this, it is almost impossible to arrange the waste so as to avoid splashing, which often accumulates into an unsightly mess upon the r.w. head and the wall. But the greatest trouble is experienced in frosty weather, on account of the openness of the connections, when the ends of the waste pipes become frozen up, or the head becomes filled with a solid block of ice overflowing with icicles, as may so frequently be seen during a severe winter.

The method in best work, therefore, is to treat the vertical waste-pipe in the manner of a soil-pipe, i.e., to carry it up of its full diameter above the eaves of the roof as a ventilator, and to cap it with a wire dome or other protector (see Fig. 3). The waste-pipe from bath or basin would be connected with a wiped joint if the vertical pipe were of lead, or with a brass ferrule if of iron. The connection of the foot of the down pipe with the gully would be as has been already described, the method most to be preferred being with the back inlet of the trapped gully; but if in a district where the bye-laws so require it, to the end of an open channel communicating with the gully. This would probably be insisted upon by the sanitary surveyor, no matter how great care had been taken to render the pipe thoroughly well ventilated.

The question of syphonage must also be considered in relation to waste-pipes where a bath, lavatory, or sink, is situated upon a floor above another bath, lavatory, or sink, and communicates with the same pipe. It need not always be necessary to continue a separate anti-syphonage pipe up in the same manner as from w.c.'s, particularly if the horizontal waste is of short length. The pipe may be taken from the top of the trap and out through the wall as shown at *d* in Fig. 3.

THE END.

The slums of London are disappearing one by one, and among the latest that is now under sentence is the maze of narrow, tortuous, and filthy streets at the back of Limehouse Church. The Local Government Board has ordered a survey of the district.

HARBOUR CONSTRUCTION.

ADMIRALTY PROJECT AT DOVER.

THE Admiralty harbour which is about to be constructed at Dover is of great national importance, inasmuch as it will possess

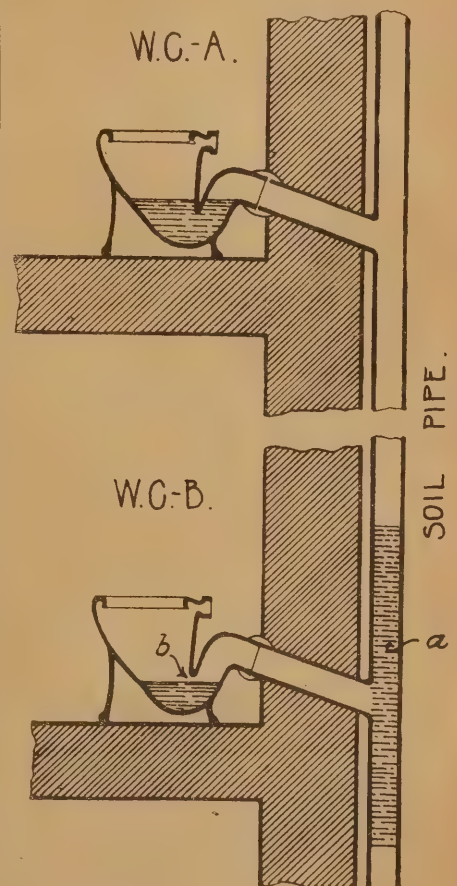


FIG. 1.

a capacity more than sufficient to provide shelter, anchorage, and coaling facilities for the whole of the vessels comprised in the Channel Squadron. The original estimate of cost of £2,000,000 has been raised to £3,500,000.

The works to be undertaken, embodying in the main the proposals of the Royal Commission of 1844, consist (says the Times in a special article on the subject) of (1) an extension of the existing Admiralty Pier in an east-south-east direction for a distance of 2000ft.; (2) the erection of an east arm extending seaward in a south-westerly direction for a length of 3320ft. from the foot of the headland, at a point situated 200 yards to the eastward of the south-east angle of the convict prison enclosure; (3) the construction of a break-water 4200ft. long, which, at a distance of about three-quarters of a mile from the shore, will form on the south the outer sheltering arm of the harbour; and (4) the building of a sea-wall 3850ft. in length, extending from the Castle Jetty at the eastern end of East Cliff Terrace to the root of the proposed east arm. For the purposes of this wall a reclamation will take place, covering an area of twenty-one acres, the foreshore between the back of the

secured, no less than 315 acres will be situated beyond the five-fathom line, and the anchorage will be sufficient to accommodate twenty first-class battleships, as well as numerous torpedo-destroyers, gunboats, and other vessels of smaller type. The new Admiralty harbour is, on the eastern side, to enclose and protect the commercial harbour which has for some years been in course of construction. As originally designed by Messrs. Coode, Son, and Matthews, the commercial harbour was intended to cover an area of fifty-six acres, but this will now be increased to seventy-five acres—first, by carrying the proposed Admiralty Pier Extension in a southerly direction 640ft. further seaward than was at first intended; and, in the second place, by similarly lengthening the eastern arm of the commercial harbour considerably beyond the point proposed at the outset. Consequently the water area comprised within the two harbours will be not less than 685 acres, giving to Dover the finest place of refuge to be found on any part of the British coast. Dover Castle will overlook the very centre of the Admiralty harbour, and the entire town will enjoy the advantage of the three enormous sheltering arms, two of which—the Admiralty pier on the west and the new pier on the east—will constitute

MAGNIFICENT PROMENADES

open to the general public. There will be two entrances to the harbour—one at the extremity of the eastern arm, the other at the end of the Admiralty Pier Extension. The former will have a width of 600ft. and a depth of 42ft. at low water of spring tides, or of 60ft. 9in. at high water of those tides, the rise of springs being taken as 18ft. 9in. The Royal Commission of 1844 suggested that the entrance on the eastern side of the harbour should be 150ft. wide, with a depth at low water of 28ft. Such a limited capacity would, of course, be utterly useless to provide for a very large proportion of the vessels which have been built to meet the requirements of modern warfare, and it would also be unsuitable for a considerable percentage of the steamers and sailing ships now engaged in trade. Hence under the present design it has been decided not merely to carry the eastern arm much further seaward than appeared to be necessary to the naval experts of half a century ago, but to make the east entrance exactly four times as wide as, and deeper than, that contemplated in 1844. The south break-water, which will not be accessible to the public, will begin at the southern angle of this entrance, proceeding first in a curve trending in a south-westerly direction, thence following a straight line west by south, and terminating at a point 800ft. from the end of the Admiralty Pier Extension. A second, or southern, entrance, 800ft. wide, will thus be formed between the south breakwater and the Admiralty Pier Extension, the depth therein corresponding with that of the eastern entrance—namely, 42ft. at low water of spring tides. Although, as explained, the arrangement of the sheltering works now decided upon has been brought into general conformity with the recommendations of the Royal Commission of 1844.

IMPORTANT MODIFICATIONS IN DETAIL

have been rendered necessary in working out the design of the new project. These consist, first, in the provision of what is technically known as an overlap at the southern entrance, created by carrying the Admiralty Pier Extension in a more southerly direction than was formerly intended, the object here in view being to cover the western head of the south breakwater for a distance of 640ft. In the absence of such an overlap, it would have been extremely difficult, if not indeed absolutely impossible, for heavy and powerful ships in Her Majesty's Navy either to enter or leave the harbour during the period when the east-going current attains its maximum velocity of nearly four knots. The engineers who are responsible for the design which has been approved are satisfied that, had the western entrance been constructed as proposed in 1844, with a width of 750ft., an interval of not more than two minutes would have been sufficient for the action of the current to cause the

drifting of a vessel across so as to obstruct the entire opening. But by reason of the overlap referred to, any vessel belonging to the British Navy will always be able to enter the harbour by this entrance in comparatively slack water, the projection seaward of the head of the Admiralty Pier Extension beyond the western

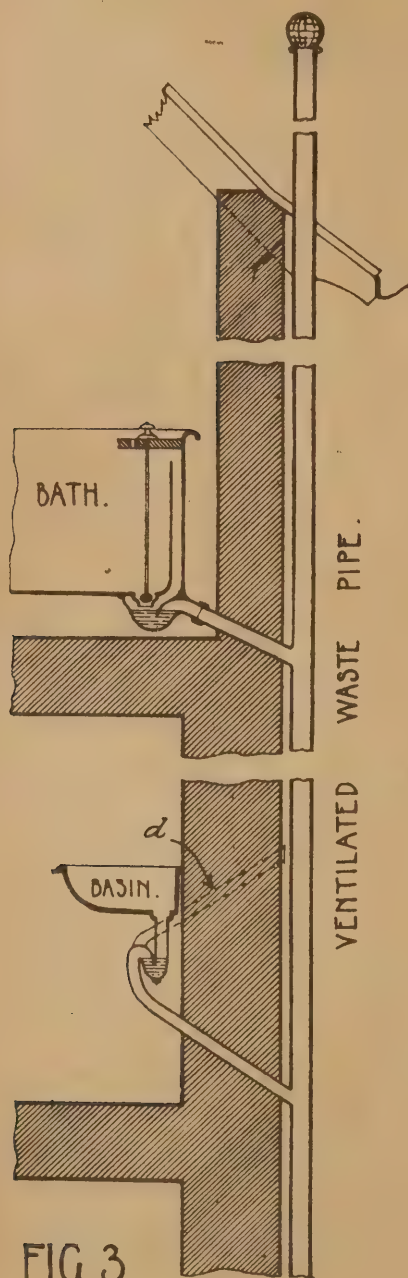


FIG. 3.

wall and the base of the existing cliffs being filled in with chalk quarried on the spot. Thus

THE WORKS TO BE EXECUTED

represent a total length of 13,370ft., or more than two miles and a half. The area enclosed will be 610 acres at low water, or fifty acres more than would have been obtained by adopting the recommendations of the Royal Commission of 1844. Of the water area now to be

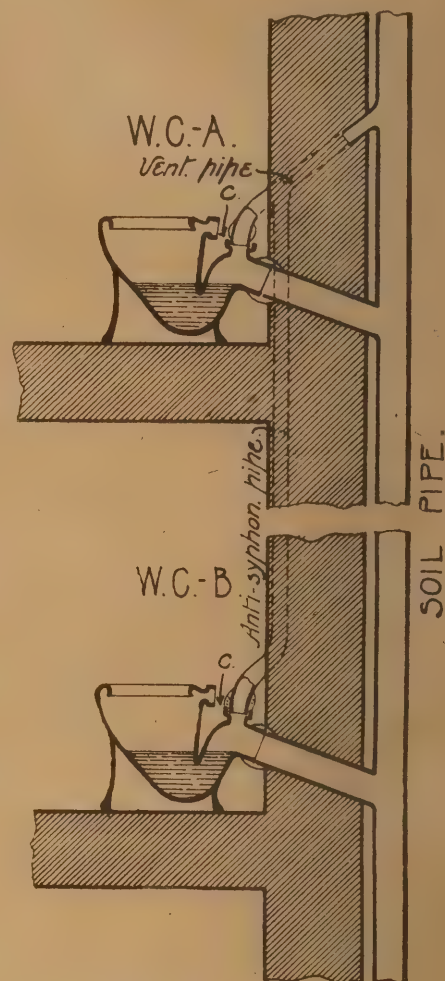


FIG. 2.

end of the south breakwater being in excess of a vessel's length. Another important advantage will be derived from the provision of this overlap, in the shelter thereby afforded during south-westerly gales to vessels approaching or leaving the harbour by the west entrance. A further feature of improvement upon the old scheme will be the increased sheltered area obtained within the harbour, which, owing to the general correspondence in the depths along

THE LINES OF THE PRESENT DESIGN

as compared with those in that of 1844, will not add materially to the cost of the undertaking. Berths for coaling purposes will be provided for a length of 1800ft. along the inner side of the east arm, the comparatively shallow area indicated on the plan being dredged down so as to maintain a uniform depth of 30ft. at low water of spring tides. The reclamation between East Cliff Terrace and the east arm will be used as a workyard during the construction of the harbour, and although its subsequent purposes cannot yet be definitely stated, it will at all times be available in connection with the work of coaling Her Majesty's ships of war. Each of the three main sea works will be a solid structure of enormous strength, consisting of concrete blocks, faced with granite above low water. The blocks used in the Admiralty Pier Extension, where the greatest sea pressure has to be resisted, will, as a rule, weigh forty tons, while those employed in the formation of the east arm and the south breakwater will be thirty tons in weight. All the blocks will be bonded and keyed, or joggled

together, so as to render the work monolithic in character; and in every case the foundations will be carried down to the solid chalk or flint composing the bed of the channel. The

MAGNITUDE OF THE WORKS

here briefly described may be gathered from the fact that the new structure henceforth to be known as the Admiralty Pier Extension will, measured from the base of the wall to the top of the parapet, be upwards of 90ft. in height, of which nearly 70ft. will be under the level of high water of spring tides. In view of the very exposed character of the site, the engineers have, in the design, taken special precautions to meet sea risk, both during the construction of the works and after their completion. The deep foundations will be carefully and completely protected from erosion arising from current action by aprons of concrete blocks laid and incorporated in the sea bed. The tender of Messrs. S. Pearson and Son, Limited, has been accepted by the Admiralty, and the works — which it is calculated will occupy about ten years in execution — will be under the direction of Major Henry Pilkington, C.B., R.E., the civil engineer-in-chief appointed under the Naval Works Loan, and of Messrs. Coode, Son, and Matthews, the chief engineers, by whom the design was prepared. The East pier, which is intended to form part of the commercial harbour, is making good progress. With the exception of the surface-paving, the viaduct portion has been practically completed by Sir John Jackson's staff, and the solid portion of the masonry, or outer part of the pier, has been laid for a length of about 1100ft. It is estimated that the remainder of the works comprised within the enlarged design of this commercial harbour must occupy three years longer, so that the commercial harbour will not be ready for use before the end of 1901.

THE London County Council, on the recommendation of the Main Drainage Committee, has decided to expend £60,000 on the construction of a new pumping station at Lot's Road, Chelsea, for dealing with the flow of the low-level and Counter's Creek sewers, and relieving them in times of heavy rains.

RECENTLY an ancient urn was picked up from a sandy knoll on the farm of West Skichen, Carmyllie, near Arbroath. It was lying near a dyke, and was just protruding from the ground. The urn is of earthenware, hardly larger than a breakfast cup, neatly formed, and quite entire. It was forwarded to Dr. Joseph Anderson, of the National Museum of Antiquities, Edinburgh, along with a request that he would give his opinion about it. Dr. Anderson has replied:—"It is a sepulchral urn, and of great interest from its being the smallest of its shape that I have yet seen." It belongs to the Bronze Age—that is, the archaeological period which preceded the Iron Age and began after the use of stone tools had died out, and lasted in Britain till within a few centuries of the Christian era. The cup, therefore, is at least a century or two older than the Christian era—say 2000 years on thereby.

Surveying and Sanitary Notes.

THE experiment which is being tried at Knostrop is similar to that which Mr. Dibdin has for some time past been engaged in carrying out at the Northern Outfall Precipitation Works, under the direction of the Main Drainage Committee of the London County Council. A one acre coke-breeze filter is used, and at the London outfall, between September, 1893, and November, 1896, as many as 500 million gallons of effluent were filtered. The effluent which was passed on to the filter contained, on an average, seven grains of suspended matter per gallon, so that a quantity equal to 2232 tons of sludge, of 90 per cent. of moisture, was entirely removed, the filtrate containing practically no suspended matter. In the case of the experiments at Sutton Mr. Dibdin has employed burnt clay, instead of using coke breeze as in Leeds, the results being equally satisfactory. A short time ago Mr. Dibdin described the experiments which he has carried out in London and Sutton to a meeting of the Institution of Civil Engineers. In his paper he claimed that by the adoption of such a system the question of sewage purification is placed on a different footing, and the necessity of costly sewage farms is entirely obviated. The results are, he says, completely under control, and filters can be arranged and worked to suit all requirements. He pointed out, however, that unless the process is carefully watched, risk of failure will be incurred, but when once the filter is fairly started and worked systematically little fear need be felt that it will go wrong. The filter, in fact, is a delicate organism, and requires, according to Mr. Dibdin, as much care and attention as any piece of machinery. It does not require constant renewal or alteration, but, like a good engine, requires watchful care to enable it to give the best results.

THE Western Branch of the Sanitary Inspectors' Association, of which the Right Hon. C. Seale-Hayne, M.P., is the president, met at Newton Abbot recently. The president, in the course of his address, said sanitation as an art was not of very great antiquity. Amongst the ancient Jews the Mosaic law was to a very large extent a law dealing with sanitation. The Jews had in the Mosaic law regulations imposing the strictest cleanliness, providing for the isolation of the sick, and for wholesome meat and drink. Those regulations were certainly not without their advantage, because during the whole of the Middle Ages, when Europe was frequently decimated by greivous epidemics, the Jewish race were remarkably free from the epidemics, which was undoubtedly due to their superior cleanliness as compared with the general dirt that prevailed. The old Romans undoubtedly understood sanitation to a great extent. Those who had read Viruvius knew how thoroughly well he was acquainted with the best sanitary position of the building, and how well he was acquainted with the best

materials, having sanitation in view, to put into that building. But, perhaps, the Romans developed their sanitary ideas chiefly in the provision of an ample supply of pure water for their towns. Those who travelled in Europe to-day were aware how at most of the chief Roman towns there existed magnificent works in their aqueducts, showing that they spared no expense or trouble in providing their inhabitants with what was more necessary, perhaps, than anything else—pure water to drink and for washing purposes. In those days sanitation was an art based on experience. Now it has risen to the dignity of a science based on a knowledge of the reasons of the facts they were seeking to produce. Nevertheless they must not be too sure that they had got to the bottom of the matter, and knew everything. They had had at Maidstone a lamentable example showing that they had yet a great deal more to learn. It had been calculated that the increased room provided in their model lodging-houses for the working classes gave on an average no less than ten years more life and ability to work to working men.

THE Local Government Board has held its first official inquiry into the merits of the septic tank system of sewage disposal. The system has been experimentally worked for nearly two years in the treatment of a part of the sewage of Exeter (from a population of about 1500 persons out of a total population of about 37,000), and Major-General H. D. Crozier, R.E., and Dr. Theodore Thomson, who were sent down by the Local Government Board, heard the testimony of a large number of eminent bacteriologists, chemists, and sanitary engineers from all parts of the country as to the satisfactory and economical working of the septic tank system in the disposal and purification of sewage. Exeter was one of the earliest drained cities in the kingdom, and has been the pioneer in using the septic tank system (which is a system in which the sewage is in part entirely consumed and the rest purified by bacteria) devised by Mr. Donald Cameron, the Exeter City Surveyor. The Local Government Board up to now refused to sanction any loan for sewage disposal works which did not make provision for land filtration, and declined to consider the Exeter scheme unless land filtration was included in it, so that this had to be done to please it; but the inspectors found themselves in a position of listening to a proposal for an entirely new departure in the method of treating sewage without having anyone before them to oppose the new scheme or defend the Board's favourite "sine qua non" of land filtration in comparison with it. The septic tank system was not so much on trial as the Local Government Board, which will, no doubt, in due time receive the report of its inspectors. It is the expressed intention of a large number of cities, towns, and rural authorities, so soon as the Local Government Board shall have seen fit to withdraw its exclusive patronage of land filtration, to follow one or other of the systems evolved from the Exeter plan.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 25	Ardgour, Scotland—Erection of Manse	.....	L. and J. Falconer, Architects, Fort William.
" 26	Buenos Ayres—Central Railway Station	.....	Legation of Argentine Republic, London.
" 28	Manchester—64 Two-story Tenement Buildings and 18 Cottages. (Two Contracts.)	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 28	Weston-super-Mare—Two Cottages	.....	Price and Wooler, Waterloo-street, Weston-super-Mare.
" 29	Burnley—Extension of Electric Lighting Station	.....	G. H. Pickles, Town Hall, Burnley.
" 31	Frinton-on-Sea—Erection of School	School Board	S. T. James, Architect, Frinton-on-Sea.
" 31	Halifax—Alterations, &c., to 2 Schools. (2 Contracts.)	School Board	J. F. Walsh, Lanes, and Yorks. Bank-chambers, Halifax.
" 31	Mold, Flintshire—Erection of School Buildings	Local Governors	G. H. Simon, Solicitor, Mold, Flintshire.
1898.			
Jan. 1	Abbeydorney, Ireland—Erection of Residence	Co-operative Dairy Society Limited	Manager, Creamery Offices, Abbeydorney.
" 1	Moybane, Ireland—Erection of Class-room	.....	E. R. Crook, Moybane, Letterbreen, Enniskillen.
" 1	Copenhagen—Repairing Cemented Museum Walls	Corporation	F. Meldahl, Offices, Copenhagen.
" 1	Glanant-isu, Wales—Bridge Abutments, &c.	County Council	R. L. Williams, County Surveyor, Denbigh.
" 4	Salisbury—Erection of Engine Shed, &c.	Great Western Railway Co.	Station Master, Great Western Railway Station, Salisbury.
" 4	Brighton—Alteration to School	School Board	T. Simpson and Son, 16, Ship-street, Brighton.
" 5	Walmor—Erection of Public Convenience, &c.	Urban District Council	J. E. Turner, 2, Cornwall-road, Walmor.
" 5	Builth, Wells—Intermediate Schools	The Governors	Telfer Smith, Architect, Builth, Wells, Breconshire.
" 6	Southend-on-Sea—Repairing Loading Pier	Corporation	A. Fidler, Borough Surveyor, Clarence-road, Southend.
" 6	Southend-on-Sea—Re-roofing Underground Conveniences	Corporation	A. Fidler, Borough Surveyor, Clarence-road, Southend.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
1898.	BUILDINGS—Continued.		
Jan. 13	Lewisham—Erection of Buildings ...	Guardians of St. Olave's Union ...	A. H. Newman, 31, Tooley-street, London Bridge, S.E.
" 18	Burley-in-Wharfedale, Yorks.—National School...	London County Council ...	E. C. Brooke, 4, Huddersfield-road, Brighouse.
" 24	Epsom, Surrey—Temporary Asylum Structures...		R. W. Partridge, 21, Whitehall-place, S.W.
" 25	Llanwrst, Wales—Erection of School ...		H. Teather, Architect, Andrew's-bldgs., Queen-st., Cardiff.
No date.	Bury, Lancs.—Brickwork in Twelve Houses ...	J. Hamer ...	D. Hardman, Architect, Silver-street, Bury.
"	Bury, Lancs.—Erection of Five Dwelling-houses ...	Brewery Company Limited ...	T. Nuttall, 20, Market-street, Bury.
"	Colchester—Erection of Business Premises ...	Shaws, Bryant, and Co. Ltd. ...	C. E. Butcher, 3, Queen-street, Colchester.
"	London—Erection of Buildings ...		Alpha, c/o J. J. Chapman, 13, Clifford's Inn, London, E.C.
"	Londonderry—Erection of a Dwelling-house ...		R. H. McElwee and Co., 9, Carlisle-road, Londonderry.
"	Padstow, Cornwall—Building Hotel ...		Crickmay and Sons, 13, Victoria-street, Westminster, S.W.
"	Skegness and Nottingham—Boarding-houses, &c. ...		C. N. Holloway, Architect, Angel-row, Nottingham.
"	Stretford, Manchester—Laundry Buildings ...		Johnstone Brothers, 39, Lowther-street, Carlisle.
"	New Quay, Cornwall—Erection of Hotel ...		S. Trevel, F.R.I.B.A., Truro.
1897.	ENGINEERING—		
Dec. 27	Glasgow—Viaducts, Widening Bridges, &c. ...	Glasgow and South-Western Ry. Co. ...	Engineer, St. Enoch Station, Glasgow.
" 27	Carrickfergus—Rebuilding Retort Bench ...	Gas Company ...	David Gillespie, Secretary, Carrickfergus.
" 27	Braila—Bridge and Road ...		The Prefect, Braila, Roumania.
" 28	Aberdeen—Construction of Waterworks, &c. ...	District Committee ...	J. D. Watson, County Engineer, County-bldgs., Aberdeen.
" 28	Wick, Scotland—Harbour Works ...	Harbour Trustees ...	J. Barron, C.E., Aberdeen.
" 29	London, E.C.—Supply of Bridge Work ...	Bengal-Nagpur Railway Co. Ltd. ...	Company's Office, 132, Gresham-house, Old Broad-st., E.C.
" 30	Catauzaro, Italy—Tramway ...		Municipal Authorities, Catauzaro, Italy.
" 30	Criccieth, Wales—Construction of Sea Wall ...	Urban District Council ...	T. Roberts and Son, Portmadoc.
" 31	St. Gilles-lez-Bruxelles—Gasworks ...	Council ...	504, Chaussée de Mons, Anderlecht, Brussels.
" 31	Brazil—Railway ...	Government ...	Central Directorate, Public Works, Porte Alegre.
" 31	Dunlough—Laying Water Mains, &c. ...	Asylum Visitors ...	Wood and Brodie, 3, Cook-street, Liverpool.
" 31	Belem, Brazil—Pumps, Boilers, &c. ...		Junta do Tesor de l'Etat de Para, Brazil.
" 31	Canterbury—Refuse Destructors ...	Corporation ...	City Surveyor, 28, St. Margaret's-street, Canterbury.
" 31	Bedworth, near Coventry—Water Tower, Pumping Station, &c. ...	Foleshill Rural District Council ...	H. B. Nichols, 59, Corporation-street, Birmingham.
" 31	Dartmouth—Fixing Two Public Conveniences, &c. ...	Urban District Council ...	T. O. Veale, Surveyor, Above Town, Dartmouth.
" 31	Durham—Filtering Tanks, &c. ...	Urban District Council ...	R. Gardner, Surveyor, Langley Moor.
" 31	Elchester, Durham—Formation of Siding, Girder Bridge ...	Owners of Hamsterley Colliery ...	Hamsterley Colliery Offices, Elchester, R.S.O., Co. Durham.
" 31	Helmley, Yorks.—Water Pipes, Service Reservoir, &c. ...	Rural District Council ...	R. Pearson, Clerk, Helmley, Yorks.
" 31	Waterhouses—Brick Bridge ...	Brandon and Bysbottles Urban District Councils ...	J. G. Wilson, Clerk, 5, North Bailey, Durham.
1898.			
Jan. 1	Lisbon—Construction of Canals ...		Department of Public Works, Lisbon, Portugal.
" 1	London, N.W.—Two Vans for Removal of House Refuse ...	St. Pancras Vestry ...	C. H. F. Barrett, Clerk, Vestry Hall, Pancras-road, N.W.
" 5	Littlehampton—Storm-water Works ...	Urban District Council ...	H. Howard, Town Offices, Littlehampton.
" 7	Dunmanway—Construction of Reservoirs ...	Guardians ...	F. J. Crowley, Clerk to Union, Dunmanway.
" 8	Ballyshannon, Ireland—Waterworks ...	Guardians ...	J. Perry, County Surveyor, Galway.
" 9	Athens—Dock Extensions ...		Chancellerie of the Monarchie Attaque and Bétie, Athens.
" 10	Bootle, Lancs.—Electric Lighting Works ...	Corporation ...	J. H. Farmer, Town Clerk, Town Hall, Bootle.
" 10	Bedford—Supply of Electric Lighting Plant ...	Electric Light Committee ...	T. S. Porter, Town Clerk, Town Hall, Bedford.
" 11	Northallerton—Iron Bridge ...	Rural District Council ...	W. Fowler, Clerk, Council Offices, Northallerton.
" 18	Gloucester—Electricity Works ...	Electricity Supply Committee ...	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 19	Kirkcaldy—Construction of Reservoirs, Filters, &c. ...	Waterworks Commissioners ...	W. D. Sang, C.E., Kirkcaldy.
Feb. 28	Guipuzcoa—Plans and Tender for Electric Tramway ...	Provisional Board ...	Commercial Department, Foreign Office, London.
" 28	Pernambuco—Port Works ...	Government ...	Brazilian Embassy, London.
No date.	Cettinje—Construction of Quay and Breakwater ...		Minister of Foreign Affairs, Cettinje, Montenegro.
"	Hull—Supply of Water Meters ...	Waterworks Committee ...	F. J. Bancroft, Water Engineer, Town Hall, Hull.
1897.	FURNITURE—		
Dec. 31	Wolverhampton—Supply of Park Seats ...	Parks and Baths Committee ...	J. W. Bradley, Borough Surveyor, Town Hall, Wolverhampton
	IRON AND STEEL—		
Dec. 28	Glasgow—Steel Tramway Rails ...	Corporation ...	J. Young, 88, Renfield-street, Glasgow.
" 29	Adelaide, South Australia—Steel Bars, &c. ...		Agent-General, Tender Board of Adelaide, London, E.C.
" 29	London, E.C.—Wrought and Firebar Iron ...	Bengal and North-Western Ry. Co. Ltd. ...	E. L. Marryat, 237, Gresham House, Old Broad-street, E.C.
" 30	Irvine, Scotland—Supply of Cast-iron Pipes ...	Corporation ...	J. and A. Leslie and Reid, 72a, George-street, Edinburgh.
" 31	Denbigh—Cast-iron Water-pipes ...	Asylum Visitors ...	Wood and Brodie, 3, Cook-street, Liverpool.
1898.			
Jan. 1	London, W.—Various Stores ...	St. George's, Hanover-square, Vestry ...	G. Livingstone, Surveyor, Parish Offices, 1, Pimlico-rd., W.
" 3	Dublin—Supply of Stores, &c. ...	United Tramways Company ...	Company's Office, 9, Upper Sackville-street, Dublin.
" 3	Shanklin—Cast-iron Socket Pipes ...	Urban District Council ...	F. Newman and Cocks, 5, St. Thomas-street, Ryde.
" 3	Birmingham—Supply of Cast-iron Pipes, &c. ...	Corporation ...	J. Mansergh, 5, Victoria-street, Westminster.
No date.	Salford—Supply of Portable Tram Lines and Trucks ...	Town Council ...	Borough Engineer, Town Hall, Salford.
1897.	PAINTING AND PLUMBING—		
Dec. 29	Llanerchymedd—Plumbing Work ...	Guardians of Anglesey Union ...	J. Owen, Architect, Menai Bridge.
No date.	Carlisle—Paintings, &c., School Buildings ...	School Board ...	T. T. Scott, 43, Lowther-street, Carlisle.
	ROADS—		
Dec. 28	Dover—Supply of Broken Granite, Flints, &c. ...	Town Council ...	E. W. Knocker, Town Clerk, Castle Hill House, Dover.
" 29	Tunbridge Wells—Sewering, Paving, &c. ...	Corporation ...	Borough Surveyor, Town Hall, Tunbridge Wells.
" 29	West Ham—Granite Spalls ...	Guardians ...	F. E. Hilleary, Guardians' Office, Union-rd., Leytonstone, E.
" 29	Elgin—Road Metal ...	County Council ...	A. Hogg, 24, Academy-st., Elgin.
" 31	Walthamstow—Granite Kerb, Setts, &c. ...	Urban District Council ...	G. W. Holmes, Town Hall, Walthamstow.
" 31	Coxhoe—Construction of Footpath ...	Parish Council ...	— Chipchase, East Hetton Colliery, Hetton.
" 31	Dartford—Road Works ...	Urban District Council ...	W. Harston, Surveyor, Sessions House, Dartford.
" 31	East Molesey—Making-up Roads ...	Urban District Council ...	J. Stevenson, Council's Offices, Walton-road, East Molesey.
" 31	Kempston—Supply of Road Materials ...	Urban District Council ...	L. Foster, Surveyor, Bedford-road, Kempston.
1898.			
Jan. 1	London, W.—Removal of House Refuse, Supply of Granite, &c. ...	St. George's, Hanover-square, Vestry ...	P. Livingstone, Surveyor, 1, Pimlico-road, S.W.
" 1	Inverness—Laying Carriageway of Suspension Bridge with Timber Blocks ...		J. A. Mackenzie, Surveyor, Inverness.
" 3	Hornsey—Paving, Levelling, &c., Roads ...	Urban District Council ...	E. J. Lovegrove, Offices, Southwood-lane, Highgate, N.
" 12	Chatham, Portsmouth, & Devonport—Supply of Teams ...		Director of Navy Contracts, Admiralty, Whitehall, S.W.
No date.	Manchester—Supply of Grit Setts ...	Highways Committee ...	Highway Surveyor, Town Hall, Manchester.
1897.	SANITARY—		
Dec. 27	Reynshan—Drainage Works ...	Guardians ...	H. M. Bennett, Liverpool-chambers, Corn-street, Bristol.
" 28	Guildford—Sewerage Works ...	Rural District Council ...	J. Dewhurst, Council's Surveyor, Commercial-rd., Guildford.
" 28	Chingford—Sewer and Manholes ...	Urban District Council ...	W. Stair, "Ridgeway," Chingford.
" 29	Sedgefield, Durham—Supply of Sanitary Pipes, &c. ...	Rural District Council ...	W. Snowden, Council's Surveyor, Sedgefield.
1898.			
Jan. 1	Fenstanton—Construction of Sewer ...	St. Ives Rural District Council ...	G. D. Day, Clerk, The Broadway, St. Ives.
" 1	Wolverhampton—Construction of Pipe Sewers, &c. ...	Sewerage Committee ...	J. W. Bradley, Boro' Surveyor, Town Hall, Wolverhampton.
" 25	Lisbon—Sewerage and Drainage Works ...	Secretary of State ...	Commercial Department, Lisbon.
	TIMBER—		
Jan. 3	Valmaseda, Spain—Sleepers, Four Locomotives, &c. ...		Municipal Authorities, Valmaseda, Spain.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 31 1898.	Altrincham—Plans for Offices ...	£20, £10 ...	Urban District Council.
Jan. 8	Belper—Water Supply Scheme ...	£15 15s., £5 5s. ...	Rural District Council.
" 30	Carlton, Victoria—Designs for Children's Hospital ...	£100, £50, £25 ...	J. Nicholson, Hon. Sec., Pelham-street, Carlton, Australia.
" 31	Leicester—Designs and Tenders for Motor Refuse Carts ...		Sanitary Committee.

THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

In turning over the **Aberrations.** leaves of some ancient album it is with quite a start that one comes upon a faded portrait of the lady who was once very near being Mrs. Brown. How was it possible, we muse, that one could have been thrall'd by such second-rate charms as these! Making every allow-

—not so very remote—when one wasted the precious hours in writing nonsense in lines of equal length, with rhymed endings, and really thought that this ill-favoured, homely, silly girl was another Helen of Troy. To take another instance, let us stroll through one of the sumptuous picture galleries which we owe to the munificence of the modern connoisseur. In some neglected corner one comes upon a picture which calls up memories of our youth. One sees the eager crowd which all day long surrounded it when displayed upon the Academy's walls, and the two burly policemen who guarded the priceless treasure start into life. One can even hear their never-ceasing appeals, urging, unavailingly, the lagging, gaping crowd to "move on." And now how poor a thing it seems! We can find nothing to admire in the crowded canvas, with its cheap sentiment and its too artificially "composed" groups and incidents. Was it not Butler who speculated upon the possibility of a whole nation going mad? Certainly a great part of the nation

overlook the broad walk. He will stare and gaze, and ask in wonderment and despair whether in A.D. 1860 this sort of thing was really considered high—nay, the very highest—Art. If he turns to the professional journals of the period he will find that the delighted writers could scarcely find words in which to express their admiration for this latest embodiment of their newest gospel of Art. And now "how abhorred in our imagination"! The kindest thing would be to clear it away and blot out and destroy all record of its existence. Will our buildings—those which we praise with such abundant rhetoric—stand the test of time, or will our immediate successors treat our works as we treat those of our immediate predecessors? Very likely—modern architectural fame is very short-lived. If we would keep a permanent place in the esteem of posterity we must base our works on those models which have stood the test of ages. This is a doctrine which is fatal to originality. Perhaps so. Originality is very well in its



ROOF SCREEN IN
Atherington Church
NORTH DEVON

Rudd 97

ance for the frumpiness of an obsolete costume, what could one have seen in those commonplace features, and that insane simper? One remembers now the shortcomings which passed unnoticed then, and with riper experience sees too clearly those indications of approaching *embonpoint* which became, in after years, so very pronounced. It is scarcely credible that there was a time

were very near losing their wits over this and other pictures of its day. And the architect is not exempt from these "spirits" of time. If he thinks, that he is now at last on the right tack let him reflect that others before him were equally cocksure. And as a corrective to pride, let him walk through the Christ Church quads and seek out the range of modern buildings which

way. But the modern buildings which keep their hold on the public taste have nothing original about them. And those buildings which pretend to the greatest originality—we forbear to particularise—are the first to pall. Whatever differences divide us in politics, there is in Art only one saving creed, and that is the Conservative. Progressiveness in Art has heretofore led "no whither." E. I. B.

The Dangers of Draughtsmanship.

THE truism that every virtue has a parallel vice is generally accepted; and equally certain is it that the possession of any gift carries with it the possibility of its abuse. Hence we find a world littered with "pot-boilers" from all branches of Art, and the desecration of talents which are bartered for applause, position, money, and so forth—prizes which can always be obtained by a suitable pandering to popular taste. All this is very vulgar, very horrid, but, at the same time, no one is probably more alive to the fact than the gifted man, who deliberately sells his birth-right for his particular mess of pottage, thereby becoming a tradesman, and forfeiting his claim to the title of artist. There is, however, a far more subtle danger than this, which assails every executant of an Art, and which often enough prevents his ever becoming an artist in the true sense of the word. The danger lies in the prominence given to the method employed in expressing an Art, rather than to the Art itself. If we apply this general statement to our particular province, we shall see how architectural design suffers from draughtsmanship. Nearly every architectural student, before he has finished his articles, has had inoculated into his being the primary importance of excellent draughtsmanship. He has probably been soaked with South Kensington principles for years, and has with infinite pains and perseverance shaded and stumped from the plaster caste, passed several quite useless examinations—in fact, done everything, according to his lights, to make himself a competent draughtsman. After his articles are completed he finds that, to secure a berth in a good architect's office, draughtsmanship is all important—design is not required. He studies the building papers and competition designs, or perambulates the architectural room at the R.A., only to find that it is the clever draughtsman who is everywhere prominent. There is the water-colour artist who is employed by the architect to beautify a somewhat commonplace design by a wealth of colour, or a mystery of atmosphere, anything, in fact, extraneous to the legitimate purpose of the drawing. Then there is the perspective specialist in black and white, who manages to make a most effective composition with hollyhocks and hedges, swallows and sunbeams, bushes and brambles, and a building as an afterthought manipulated somewhere into this very pretty picture. Little wonder that the student should devote himself more closely than ever to draughtsmanship, when design plays such a subordinate part. Little wonder that as he grows older he should be satisfied with commonplace details which he has drawn so beautifully, or pretentious designs which on paper he has rendered so effective. How quaint and picturesque is the drawing of this half-timbered house with its broken ridge and impossible shadows, and how cruel is the awakening when the actual building in its prim modernity is finished. As long as draughtsmanship, however excellent, is placed before design, this false state of things must continue to exist. It is not Art to cover up a vulgar mantelpiece with beautiful drapery, and it certainly is not Art to cover up a design with draughtsmanship. An architect's object in life is to design, and with this object in view he must cultivate everything helpful to design; but the composition must always be first, the execution must be subordinate. How delightful would it be if every young architect realised the importance of the motto of the Architectural Association—"Design with beauty, build in truth."

H. S. M.

Art Education.

THE last decade has shown a marked alteration in the system of education. The old path of pupilage is forsaken for the new one of the schools. Each system has its advantages as well as its drawbacks. Art is a curious thing. You cannot teach it by routine. It does not lend itself easily to set speeches or formulas of expression. It is not to be learnt from books, though some may help. It seems to need the touch of personal intercourse between man and man, the play of mind on mind, the breath of a living and glowing enthusiasm. The position of the favoured pupil of the genuine artist is to be envied. To live and work with such a man long enough to understand him and his ways of thought—this is to have a chance of learning something from him. We do not wear our hearts on our sleeves; to be over-reserved was ever a national failing. The inner secrets of Art are only discussed in the rare moments of confidence between man and man. They do not lend themselves to the formal air and pompous diction of the lecture theatre, or to the restraint of the class-room, where teacher and taught are comparative strangers. To serve an apprenticeship to a genuine and accomplished artist—yes! But how if he be neither genuine nor accomplished, and fond but foolish parents have paid dearly for the privilege? This is the fate of many, of far too many for the credit of Architecture. If philosophers were kings, the problem of government would be solved; if all practising architects were genuine and accomplished there would be no problem of education; but the reverse is notoriously the fact, and we do our best with the schools. This best is, at present, but a poor best; more could be done, ought to be, and will be done. But on what lines? Is not the teaching at present too fragmentary, too much lacking in system, too much a matter of isolated facts? Are not the schools regarded as supplementing the knowledge obtained in an office? when really the office should be regarded as supplementing and completing the knowledge obtained in the schools. The schools can teach how a thing ought to be done; in the office may be seen how a thing is done; how near it is possible, in practice, to come to what ought to be. You cannot discuss first principles when you are in a hurry; you cannot explain your reasons in the rush of a competition. A dozen different reasons, of finance, of bad site, of client's instructions, may force you to do a thing in a way which is not the best; but is it always explained to the pupil. Does he not go away thinking this is how it ought to be? In the schools these matters could be discussed, the best way shown, the reasons given; a general knowledge of Architecture could be learnt; afterwards, in the office, it would be seen how this knowledge is applied to the practical affairs of life. Why are the schools content with the evening hours, the leaveings, the odds and ends of the student's time? They will never do what they might do while this arrangement holds. Do they take themselves seriously, and expect other people to, or are they only providing a pleasant way of spending an evening to those not socially inclined? If they have anything to say that is worth hearing, it is worth while to give up time in which to hear it. How much better if the student went first into the schools, all day and every day; how much wasted time might be saved when he afterwards went into an office. What is now learnt in ten years might, by better management, be learnt in five; and life is very short.

A. R. J.

CHICHESTER CATHEDRAL.

THE WEST FRONT THREATENED.

THE case of Chichester Cathedral, which is now threatened by the Vandals, is, in one sense, far worse than that of Peterborough, though in another sense far less bad. It is far less bad in that there is no question at Chichester of a superlatively beautiful work of Art, ranking among the wonders of the world of Architecture; but, says a correspondent of the Daily News, it is far worse in that the proposal is more absolutely wanton, no necessity being alleged, and far more vicious in principle. The actual scheme as put forward is to build a new north-west tower. At present the upper story of this tower, which flanks the west front, is a fragment; only the south wall abutting on the front existing above, while below is a chamber built in the seventeenth century, some say by or under the direction of Wren. Not 100ft. away, and effectually screening from the public road the fragmentary character of the north-west tower, is a detached campanile or Bell Tower, a MAGNIFICENT PRODUCT OF THE PERPENDICULAR STYLE,

extremely interesting from the fact that the Deans and Chapters of the past have pulled down nearly all the specimens formerly existing at Canterbury and elsewhere of these detached bell towers. It is now proposed to pull down the lower portion of the tower and rebuild the whole in a more or less exact imitation of the south-west tower, the lower portion of which is part of the original Norman cathedral, while the upper is thought to have been erected after the fall of the Norman upper storeys, in the time of Bishop Seffrid II., between 1210 and 1220. The cost is put at over £6000, and this is proposed to be done while necessary structural repairs, estimated at some £10,000, have not been done. The Bishop of Chichester, the other day, assured the world that the Cathedral authorities were not going to be Vandals or to build a sham tower. His utterance raises the whole question at issue in a very succinct form. "When," quoth he, "the north-west tower was built by Bishop Seffrid in the thirteenth century, was it a sham tower? Just what Bishop Seffrid did then the men of the nineteenth century were going to do now, under the direction of one of the most eminent architects of the day." But this is just what they are not going to do. They are going to do something entirely different to what Seffrid did. For what did Seffrid do? When the Norman tower partly fell down, he had it built up in the prevalent style, "Transitional," of his own day, a style that came naturally to the architect of the thirteenth century, and could no more be mistaken for that of the previous architect than Millais' style in painting could be for that of the eighteenth century. But the "eminent architect" does not propose to build

IN THE STYLE OF HIS OWN DAY.

If he did wish to do so, in what style would he build? In the Gothic, the Greek, or the Italian style? What says the Bishop? "It is intended to restore, as far as they could, line by line and stone for stone, the work which Bishop Seffrid did in the thirteenth century." In other words, the men of the nineteenth century are going to imitate the style of the thirteenth. Will not the result be as much a "sham"? But this is not all. It is proposed to put the new work alongside of, and in part above, the old fragment that still remains of the eleventh and thirteenth century tower. It is alleged that this will serve to support the west front, but in the opinion of experts, it will be found impossible to do this. The imposition of additional weight is almost certain to crush and destroy the old masonry. Besides, if the new work should be bonded in—and it must be if the work is to serve as an effective buttress to the west front—the settlement of the new work will drag down the old with it, and the result will be, if not the fall, inevitably the rebuilding of the old. If the new work is merely built up alongside the old, how will it help to maintain the old?

CARDIFF COMPETITION.

A SUPPLEMENTARY CRITICISM.

AMONG the faults in Messrs. Cooksey and Cox's plan for the Town Hall are the positions of the rates and weights and measures departments and the pay office, placed as they are on the south or main front, and entered off the carriage-ways into the Courts. These departments would have been more advantageously placed within the quadrangle, as the traffic to and from them would at times be great, and liable to congest the only approaches to other departments.

The architectural treatment of the porches and lavatory blocks projecting into the courtyard is also bad, and could be much improved by a flatter and broader type of projection being employed. The architectural breaks in the front elevation, also, have no meaning or use ultimately, but these and other defects are probably due to want of time and do not seriously militate against the admirable type of plan which takes a very high place for simplicity and breadth of treatment.

In the Law Courts block, however, very few of the essentials of good planning seem to have been considered. The two courts placed behind a central hall are separated from one another by the ante and Grand Jury Room which are connected with the Criminal Court alone, and effectually bar the arrangement of a central State entrance for the judges, who have to turn right and left along the length of the hall and up a long side corridor to their rooms. The Wreck Enquiry Court, administered by the stipendiary magistrate, is placed away from the Magistrates' Clerks' department and to the west of the Assize Courts; the Bar Robing Room, together with other rooms for the use of both courts is placed at one side of the building, and there are other mistakes as to leading points in the planning which entirely condemn it.

The Police Station has been planned without any regard to symmetry of its elevation towards the avenue, to which it presents an elevation as ragged and uneven as the back of a speculative builder's house, the whole plan rather suggesting a first sketch worked in than a finished scheme. The elevations, on the other hand, are charming, and would, if carefully finished, contrast favourably with either of the two first premiated designs. The central towers, flanked on either side by the broad masses of the Assize Courts, lit by large Roman windows, and the long, lower building in front, broken up with engaged columns and arched window openings, forms one of the most pleasing groups in the room.

Among other noteworthy designs is that of Mr. Mountford, who places the main rooms at the base of the building, and approaches the principal or first floor by an external flight of steps, which lead under a broad portico and up to a central hall, at each side of which are long areas with corridors running round, and lavatory block placed in the centre. At the eight angles of these courts are placed staircases. The elevations of this design are vigorous and dignified. Subordinate entrances are shown on the ground level.

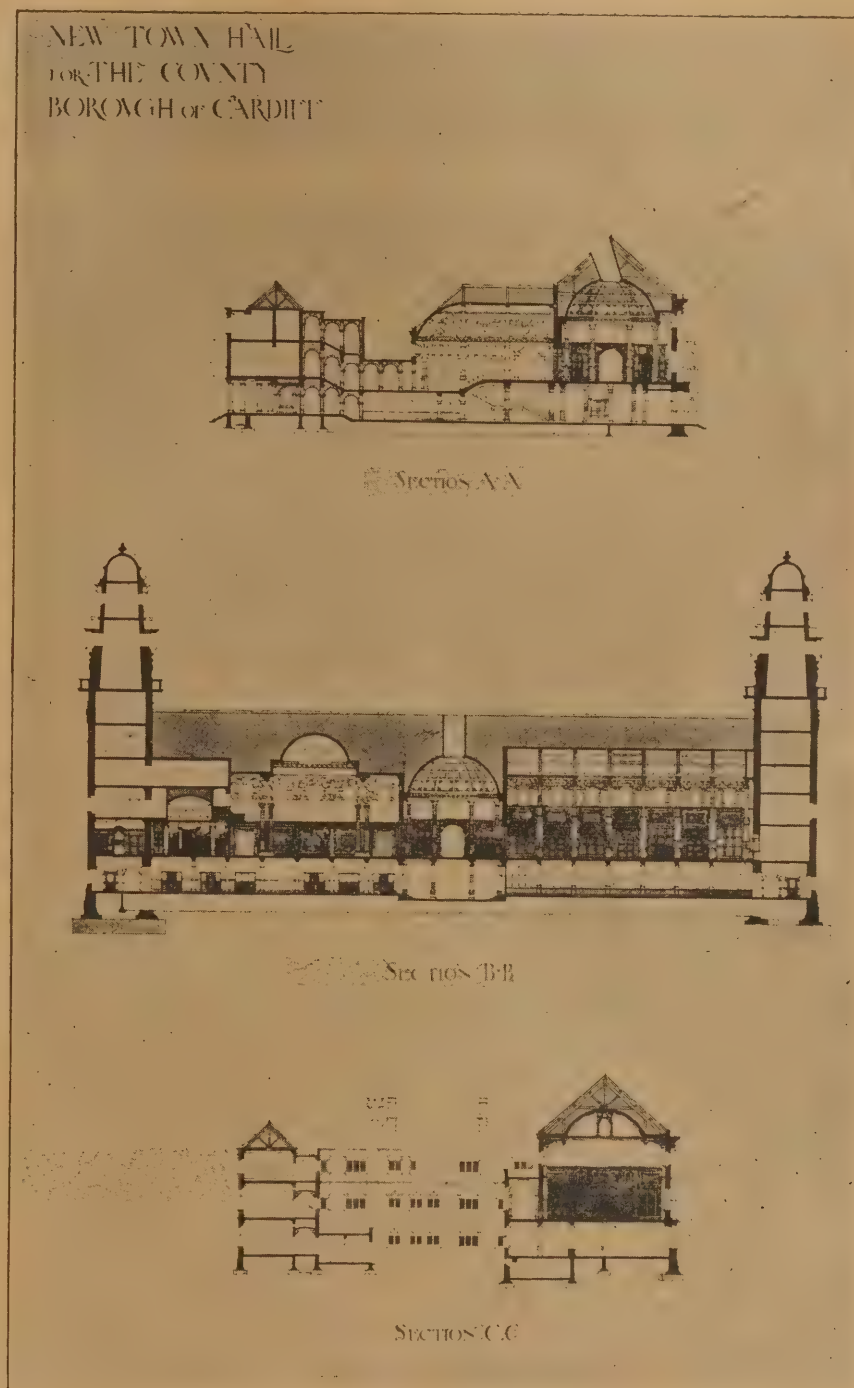
Mr. Henman, of Birmingham, submits a design providing the rooms required round a circular court, which he proposes to roof over

(Our first criticism on the Cardiff Competition, together with illustrations of the first premiated drawings, appeared in our last issue.)

as a Town Hall. The staircases are placed in the four angular spaces. A large bulbous dome surmounts the whole, which is more suggestive of a theatre or music hall than a municipal building.

Messrs. Leeming and Leeming's design has a monumental appearance, and is a little suggestive of the Palais de Justice at Brussels. In its massing it is among the finest designs submitted. The police courts cover a larger area

carriage way in the centre of the north front. The Town Hall and Law Courts are shown connected with tower by an arcaded bridge or loggia, which, like the large central hall suggested in Mr. Henman's design, is to be a future addition or "extra." The architectural treatment of the whole is more adapted to a smaller building than one on the proposed scale. The design is among one of the most costly in the room from its size.



CARDIFF COMPETITION. BY MESSRS. GIBSON AND RUSSELL.

than most others in the room, as the whole of the accommodation has been placed on the ground floor, including cells.

Many of the remaining competitors have shown a detached tower standing centrally in the avenue between the Law Courts and Town Hall. This is the case with Messrs. Brewill and Bailey's design, in which the Town Hall is planned round one large quadrangle, with a

Mr. Seward, of Cardiff, sends in a design consisting of a front block with three wings in the rear, the centre of which forms the Assembly Hall, a connecting wing being shown as a future extension, but which, as it stands, rather suggests an asylum or infirmary than a Town Hall plan in which concentration and convenience of working, and not isolation, is to be aimed at. The elevational treatment is

undignified and commonplace, with a multitude of gables and other features, and not at all suggestive of its uses.

Messrs. Richards and Budgen submit the best of the remaining designs from Cardiff architects, which are, however, by no means remarkable for their merit.

Mr. Bran, of Croydon, sends in a rather pleasing design, which is suggestive of Mr. Webb's influence in its design.

No. 24 is by Mr. Cheers, and is rendered in an extraordinary manner, the tinted elevations being cut out and pasted on another sheet, on which trees and sky are tinted. Both this design and that by Mr. Chisholm would delight a land and estate agent, but are representative of a bygone age in architectural draughtsmanship, and illustrate very commonplace, mediocre designs.

Among other oddities in the room is the design numbered 38, in which the authors have thrown both Law Courts and Town Hall into a single building, through the quadrangle of which the avenue passes, some of the State rooms forming part of the bridge across the avenue; while No. 54 submits a detail which is suggestive of a pupil's first attempt, and which is more to be regretted, as the author has done some clever planning elsewhere, in smaller buildings.

The general criticism that one is inclined to make after a careful study of the designs submitted is that a far better result might have been obtained had the conditions been better and more thoroughly considered.

It must be admitted that the award of the first premium would have been more satisfactory had it been more in accordance with the conditions, and it seems hardly right that in a case of this kind, where designs for two buildings are asked for, that a design should receive a premium as in the case of the design placed third, of which one of the constituent buildings is not well planned. Would it not have been simpler to ask for designs for a Town Hall alone, and let the winner design Law Courts, or to have had two separate competitions, unless a certain standard of excellence in both designs is to be insisted on?

If on the other hand it had been left to competitors to arrange each building to front on the avenue, it would have been possible to plan a grand architectural group, and the different sizes of the two buildings could have been obtained by increasing the depth of the Town Hall while planning each building with an equal and possibly similarly treated frontage to the avenue. This idea has been partially carried out in the first premiated design, and it is clear that had it been known that such a solution was allowable many competitors would have been glad to avail themselves of the opportunity, for it is quite evident that only in this way, or by planning the two buildings as one block, can a really satisfactory result be obtained. As laid down in the conditions, it was proposed to place the two buildings, too far apart to form a group and too near together to be treated independently.

It is singular that with unlimited space at the disposal of the Corporation, this was not borne in mind.

As the old order changeth, giving place to new, it is greatly to be hoped that changes for the better will take place in competitive conditions, and that they may become simple, plainly-worded expressions of well-considered intentions, and not a tangle of suggestions, among which architects grope in the dark, as is too often the case now.

MATTERS ARCHITECTURAL AT LEEDS.*

BY GEORGE CORSON.

I NOTED in my first address the changes in the architectural aspect of Leeds since I first knew it in 1849. Specially I noticed one conspicuous building which had an industrial and political history, but was in other respects a blot upon the aspect of Leeds. That was the Coloured Cloth Hall. Fortunately, after many attempts, the Council succeeded in securing it, and the "Quebec" buildings adjoining, at a large cost. The site was cleared and a considerable portion sold to the Government, upon which to erect a post-office sufficient to meet the wants of Leeds. That building has now been erected, and includes not only accommodation for letter post, but also for parcel post, telegraph, and Inland Revenue. I am not by any means alone, however, in considering the front elevation to be a splendid opportunity lost, and in regretting that the architect of the post-office has not been able to rise to the occasion. But putting aside all questions of architectural merit, what a contrast is presented between the colossal building in City Square and the small and abject building at the foot of Albion Street, in which the postal business was carried on some twenty years ago, or more. The result of the formation of the City Square, in enhancing the value of the surrounding property, has been already exemplified in the recent sale of the old post-office site, in area about 666 yards if I remember aright, at £75 a yard, or nearly £50,000 in all. Certainly, of late, there has been a revival of the dead bones in the matter of street improvements and the erection of new buildings, partly in consequence of these. Without trenching upon politics, debarred in this Society, and in my opinion altogether outside of municipal business, I cannot help observing that within the last two years the slow revolving wheels of municipal progress have had an electrical stimulus given them which is very cheering to the hearts of those who have watched with impatience the tortoise-like and planless efforts of the City Council for so many years to bring about improvements in widening the streets and removing obstructions. I happen to have in my possession a plan for the improvement of Land's Lane, which Mr. Filliter, the then Borough Surveyor, some thirty years ago gave to me with the remark that the Council could not undertake so large a work; and he thought I might bring to pass an improvement from which the Council shrinks in dismay. That was fallacious, and Land's Lane remains now, with small exceptions, as it was thirty years ago. There are other examples in the City of delay in taking action in these matters which will occur to most of you. Prices of property, especially in business thoroughfares, are constantly increasing, and the Corporation has to pay now two or three times as much as would have been required twenty years ago. Let us hope that a younger and more hopeful spirit has been infused into the Council, and that the truth may be recognised that judicious improvements always pay for themselves in the short or long run. I will not enlarge upon the buildings which within the last twenty years have added to the architectural aspect of Leeds. Suffice it to indicate the Yorkshire Penny Bank, the National Provincial Bank, and the bank of Wm. Brown and Co. (now in course of erection), the Prudential Assurance buildings, the new Medical School, and the extension of the Infirmary buildings. So long as Leeds grows at the rate of 7000 a year, so long must its needs in every direction extend, and my successor in this chair twenty years hence will have, no doubt, ample scope in chronicling a greater Leeds. There are several directions in which a municipal government of Leeds may effect reforms in directions which on other occasions I have pointed out. The last Improvement Bill gave powers to the

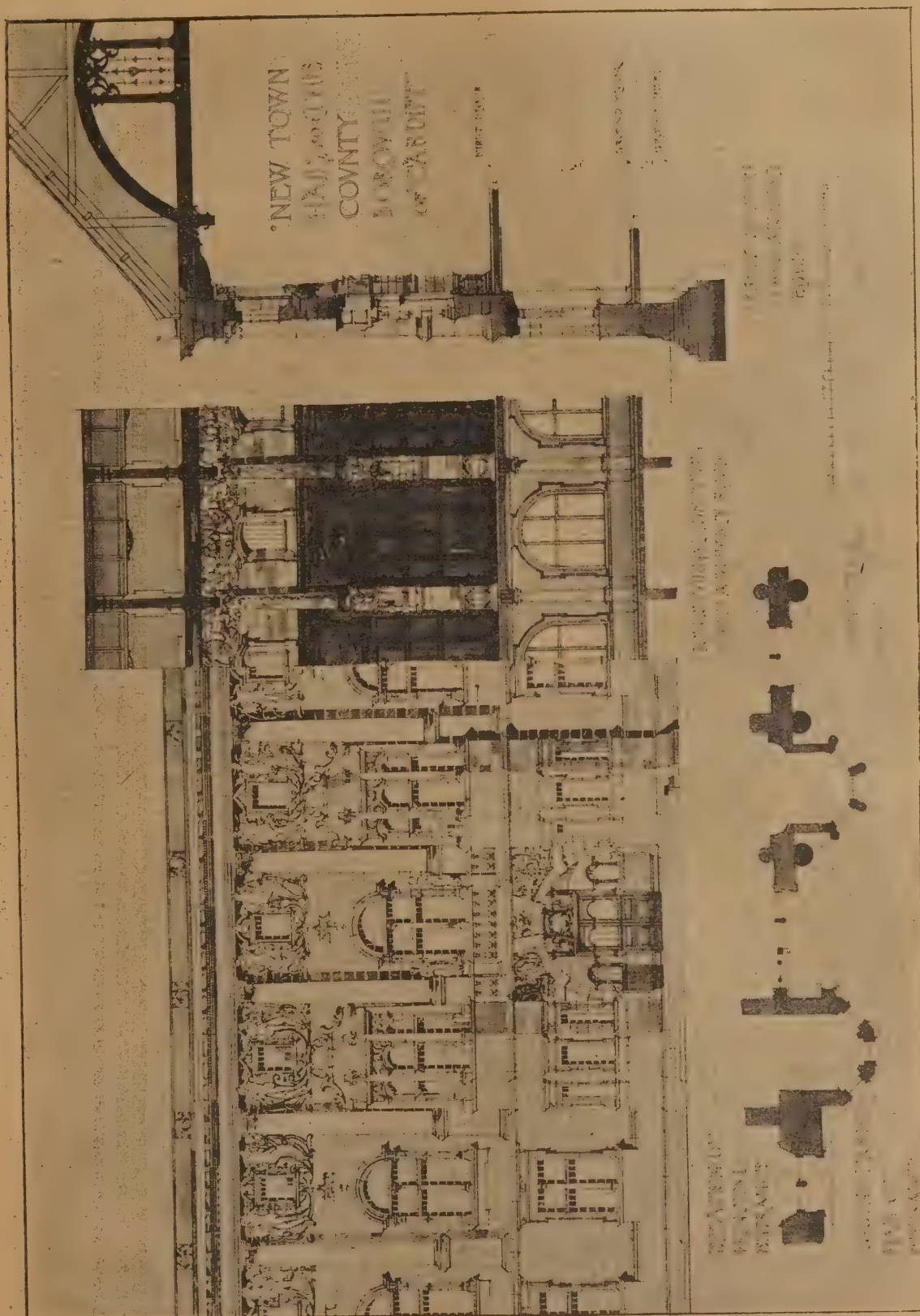
Corporation to "regulate" hoardings and the placards with which they are covered. Nothing has been done in that respect. I think that a "regulation" might be made that no hoarding should be allowed that does not leave a space of, say, 6in. between each board. This would put a stop to the disfigurement of our streets by the advertising bills which now cover these erections. In France all such advertisements are taxed; they must have a stamp affixed of value according to the size of the bill. There is another way. Prohibit all trade advertisements displayed in public, except upon the building where the article is manufactured, or the shops where it is retailed. It seems to be forgotten that the people of this great city pass most of their lives in and about its streets, and that they are entitled to have their surroundings made as quiet, as orderly, and as comely as lies within the power of those whom they have elected to rule over them. Let me, before I close, quote from a book, which I have here, some remarks as to the cares and anxieties of our Profession, which will, I think, be heartily endorsed by all of you. The book is entitled "Remarks on Church Architecture," by the Rev. J. L. Pettit, published in 1841. Mr. Pettit has passed away, but his book lives, and I can recommend it as evidencing a love of Architecture and a skill in sketching which we do not often find.—"But let me not be thought to speak a word in disparagement of the professional architect. So great are the actual and inherent difficulties of his Art, and so grievously are they multiplied by external causes; so limited and restricted is he by the perverseness of others; so many conflicting tastes and opinions has he to consult; so beset is he, on every side, by the ostentatious views of one, the parsimony of another, the private interests of a third, and the overweening ignorance of the greater number, that it is a marvel his work should ever be respectable; and we cannot deny that many of our modern churches are extremely creditable to the taste and skill of their designers. Let those who speak of the labours of the architect with flippancy, or censure them with unkindness and severity, reflect upon the difficulties he has to encounter; of no other Art are the principles and beauties more deeply hidden in the treasury of Nature, and to be searched out with greater toil and diligence. The painter, the sculptor, the musician, finds his laws and models, as it were, on the surface; the proportions of form and the harmonies of sound are at once conveyed to his senses, and present him with sure and infallible elements. But where is the architect to look for his examples? The fretted arches and canopies of the living rock, the verdant aisles of the forest, the spiry pinnacles of the Alpine range, may afford him ideas of sublime grandeur, but can furnish him with no rules by which they are to be developed and arranged. That these are as fixed and immutable in their nature as the foundation whereon any other art or science is grounded, we cannot doubt for a moment; but how difficult does it appear to detect them, how impossible is it to enunciate or define them!"

SIR E. J. POYNTER, President of the Royal Academy, will open, early in the New Year, the new South London School of Arts and Crafts, which has been erected in Peckham Road, Camberwell, as a memorial to the late Lord Leighton, P.R.A.

A PUBLIC meeting at Cardiff has resolved to erect a memorial to the late Dean Vaughan to be placed in Llandaff Cathedral, and that it should take the form of a recumbent effigy of the late Dean. An amendment, that a memorial window of stained glass should be placed in the west front, was negatived.

A MEMORIAL tablet to the late Mr. George Richmond, R.A., has been placed in the crypt of St. Paul's Cathedral. The bronze medallion, with a life-like portrait in low relief within a wreath supported by two amorini with inverted torches, designed by Sir William Richmond, R.A., is mounted in a tablet of rosso antico marble adapted by Mr. John Richmond from an ancient altar figured in Mr. C. H. Tatham's work on classical ornament.

* Extracts from an address delivered by Mr. George Corson, before the Leeds and Yorkshire Architectural Society.



CARDIFF TOWN HALL AND LAW COURTS COMPETITION. BY MESSRS. GIBSON AND RUSSELL.

VILLAGE HALL AND CLUB.

ARCHITECTURAL COMPETITION AT BYFLEET.

THE drawings submitted in the Byfleet (Surrey) Village Hall and Club Competition have been on view to the public at West Hall, Byfleet, the residence of Mr. Stoop, who is providing the money for the erection of the new building, which, we understand, is to be a memorial of the Jubilee.

Mr. W. Howard Seth-Smith, the assessor, says in his report:—"As many as ninety-two sets of drawings have been received in response to your advertisement inviting competitive designs for this building. A large proportion show a high average of planning and design, and the best ten were so good as to require a good deal of consideration and comparison before I was able to report to you. I have no hesitation, however, in stating that the design under the motto of "Red Star" most completely fulfils the advertised conditions and other requirements of a village

hall, and should be awarded the premium of twenty-five guineas. The authors are Messrs. Ashley and Armstrong, of 50, Berners Street, London, W. I have made a calculation of the cost of carrying out this design, and consider that, with extreme care and economy in every detail, it may be realised, exclusive of all fittings, for a sum approximating to that stated in the advertisement. Several slight modifications will, however, have to be made in carrying it out."

It is very refreshing to record such a competition as this, which, like the one we recently

County Borough of Cardiff.

PLAN SHOWING FRONTAGE LINES FOR TOWN HALL AND MUNICIPAL BUILDINGS



CARDIFF COMPETITION.

noticed at Bethnal Green, has been conducted throughout in a perfectly open and straightforward manner; and where there can be no doubt as to the superior merit of the premiated design.

The site is charmingly situated in a level field, with none of the restrictions imposed by ancient lights of adjacent buildings to hamper the competitor.

The conditions, which were somewhat meagre, provided that the hall portion of the building should accommodate between 300 and 350 persons, with two dressing-rooms at the stage end; the club was to contain reading, committee, and billiard rooms. Two rooms for a caretaker were also to be provided. The cost of the building was not to exceed £1500.

The small amount of money to be spent necessitated a very simple treatment both as regards plan and elevation, a fact which a good many authors of otherwise excellent designs seem to have ignored.

Although no less than ninety-two sets of drawings were submitted, there are certainly not more than twenty which rise above the

necessary in a building of this kind. In the club part of the building, the reading-room, billiard-room, and lavatory accommodation are arranged on the ground floor, the committee room and caretaker's quarters are upstairs. One point open to criticism is the space accommodation for the caretaker, whose bedroom leads directly out of the kitchen, and who is without larder, scullery, or even w.c.

The clever water-colour perspective illustrates this design in a manner which the sketch accompanying this description must, of necessity, fail to do, although some idea can be obtained of the general character of the design. The materials employed in the elevation are red facing bricks for the ground floor, with a half-timber treatment above. It is a great pity that the authors should have introduced battlemented turrets into their simple elevation, and it is to be sincerely hoped that they will reconsider this quite inappropriate feature.

Messrs. W. F. Taylor and Son are "highly commended" for a very taking design. The plan is very similar to the successful one, with hall at side, and entrances to club and hall

all the best designs. The elevation is commonplace, whilst the half-timber treatment of the main gable is in the worst possible taste.

Another "highly commended" set of drawings is that by Messrs. Smith and Robinson, whose domestic design is far more suitable for a country house, a fault which applies to a large number of the designs submitted. Messrs. Paxton and Crouch, for example, have designed an elevation which would be admirable for the home of some medical practitioner, but has altogether missed the spirit in which a village hall should be conceived.

Mr. H. L. Fedden illustrates a quiet, red brick elevation with a pretty water-colour sketch, but spoils a well thought out plan with a bad entrance to the hall.

The design by Mr. C. H. B. Quennell is at first sight clever, but a careful study of the design shows many weak points. The author has adopted a T-shaped plan, having his hall at the back of the club, which necessitates the public going through the club premises before they can get to the hall, an arrangement which, although many competitors



PREMIATED DESIGN

BY

MESSRS ASHLEY & ARMSTRONG

BYFLEET VILLAGE HALL AND CLUB COMPETITION.

level of mediocrity, many being, indeed, beneath any serious criticism.

The premiated design by Messrs. Ashley and Armstrong distinctly earns the laurel wreath which we notice has been placed over their drawings; the plan is compact, simple, and cleverly arranged, whilst the elevation is, on the whole, quiet and well-proportioned, a combination not always arrived at by the other competitors.

The authors have placed their village hall on the right side of the club, but have arranged the public entrances both to club and hall in the front of the building, which is certainly a great advantage. Cloak-rooms and lavatories for ladies and gentlemen are placed on either side of the vestibule to the hall, additional cloak-rooms for artists being supplied at the platform end. The public entrance to the hall from the vestibule is through sliding doors, an arrangement which, of course, would not be permitted in a room for public entertainments. Beneath the windows at the side of the hall the authors have shown extra exit doors, to be used in case of emergency. Both the club and hall, although perfectly distinct, are in communication with one another, which is very

from the front. The perspective view is a charming little picture, perhaps more suggestive of a village inn than a hall, and lacking in that compactness which is exhibited in Messrs. Ashley and Armstrong's design. It is, however, extremely picturesque, and we should imagine that, if there had been a second premium offered, it would have been secured by this clever set of drawings.

Mr. A. G. Quibell's design is also "highly commended," although it hardly suggests a village club. The imposing elevation with its towers and buttresses is cleverly conceived, but quite unsuited to the site, or the purpose for which it was designed. The perspective is not on the same level as the other drawings, which are most effectively rendered. The plan is unnecessarily extravagant—a library, refreshment bar, and scenery entrance, for example, can easily be dispensed with when £1500 is all the money at the architect's disposal.

For some reason we cannot understand, Mr. Heatham is "highly commended" for his set of drawings. The irregularity of the plan is caused by an unnecessary amount of passage-way, a fault which is conspicuously absent in

have adopted, would always be most inconvenient, and in the case of panic very unsafe.

Mr. Hampden W. Pratt contributes a design which seems to be a combination between a suburban villa, an incongruous tower, and a poverty-stricken chapel. The plan is, however, a good one, were it not conceived on too large a scale.

Mr. Robert Clamp sends in a domestic design with a very extravagant plan. Why he should have troubled to illustrate a quite ordinary staircase with an ill-drawn sketch, when he contributes a very nice pen and ink exterior perspective, it is difficult to imagine.

Mr. Stonhold's design has the merit of looking like a public building, and is seen to advantage in a well-coloured perspective. The plan, however, is ill-arranged, all the accommodation being on the same level, with the hall at the back of the club.

Mr. Varndell's set of drawings are interesting from a pictorial point of view, the mediæval perspectives being cleverly drawn, but it is difficult to take this design seriously.

Although some of the remaining designs possess merit, they do not call for any special criticism.



BYFLEET COMPETITION.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 29th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE award in the Newark School of Art and Technical Buildings competition has been made by Mr. Ernest George, who placed the designs as follows: First premium (£50), Messrs. C. E. Mallows and Grocock, Bedford and London; second premium (£25), Messrs. Silcock and Reay, Bath. The work of erecting the building will be placed with the successful architects, and will be commenced at an early date.

WE hear that Mr. Aston Webb, F.S.A., F.R.I.B.A., has been appointed by the Corporation of Nottingham to assess the designs sent in competition for the new cemetery at Basford. Mr. H. E. Milner, F.L.S., A.M.I.C.E., will assist in the adjudication of the schemes for laying out the grounds. We also learn that twenty sets of drawings have been received. It is interesting to note that the Corporation intend building a crematorium, designed on the latest and most approved principles. It is to be hoped that before long all the large towns will be provided with this most necessary adjunct to a cemetery.

A CORRESPONDENT writes:—"I wonder how many students and artists are aware that there is a very fine specimen of mural decora-

tion to be seen at University College, Gower Street. The work is in marble and coloured cements; and was bequeathed to the college by Mr. Grote, the historian. I may mention, by-the-way, that more than once £35,000 has been offered for the work by Americans who would like to take it across the water. Yet I seldom or ever see a Fine Art student paying any attention to the work, which, I may mention, is well placed for study, being admirably lighted."

"I WISH also to draw the attention of art students," continues our correspondent, "to the fact that, though there is no mention made of it outside the lodge gates, or on the notice board, there is a very excellent collection of plaster casts contained in the Flaxman Gallery, together with many pencil and other drawings by the master himself, which are daily open to the public, gratis, from 10.30 a.m. to 4.30 p.m. I venture to think if greater use were made of the gallery and its contents, it would be to the manifest improvement of students; also the collection, which I found

exceedingly dirty and dusty, on remarking which I was told by an attendant that the casts had not been cleaned for ten years, while he also told me that the principal visitors were Americans, and that he seldom or never had a Fine Art or Slade scholar in the gallery—in fact, he believed many of them did not know it was there. As this collection comprises such works of art as replicas of the Achille's shield, a recumbent monument in St. John's, Manchester, and the colossal group of the Angel Gabriel overcoming Satan—the original of which is at Petworth Castle—I think it would be well if the authorities of the college took some means of making the gallery better known, and of providing a catalogue for the use of visitors, or, better still, labelling the works. It is a poor appreciation of Miss Denman's generosity that the Flaxman Gallery is deserted as it is. In the meantime, it would be well to have the exhibits cleaned, and then our budding sculptors could study the many beautiful bits to be seen there."

It may not be generally known (says a correspondent) that one of the schemes which was laid before the Government Committee which has been considering the question of new sites for the War Office and other departmental buildings, contained proposals of a no less revolutionary character than the erection of a huge monumental group in commemoration of the Diamond Jubilee on the site of King Charles statue, and the general re-arrangement of the Nelson column, the Gordon statue, and other familiar memorials in the square of squares. Briefly stated, the idea was to widen Charing Cross to 100ft., and to make an axial line from King Charles statue, which would be shifted back to the site of the Nelson column, radiating in the direction of Northumberland Avenue, Charing Cross, the Strand, Cockspur Street, and the Mall. The Nelson monument would be set back nearer to the National Gallery, and immediately between the two fountains, whilst beyond this was to be placed the Gordon statue. The result of these proposals, if carried out, would be a large addition to the roadway at Charing Cross, whilst anyone standing at the central axis already mentioned, would have an uninterrupted view down these five main arteries of traffic, and in the case of the Mall, when Spring Gardens was opened up, into the very park itself.

A DISCOVERY of great interest to archaeologists has been made at Tasburgh, in Norfolk. The village is the reputed site of a Roman camp, and occasional remains have been dis-



BYFLEET COMPETITION.

interred there. The new discovery is the burial-place of the victims of what was evidently a considerable battle. In one small pit, only a few yards square, forty skulls were found, as if the dead had been thrown in in heaps, and at other points in the neighbourhood excavations following on the first discovery have revealed others. The place was evidently a veritable ancient Golgotha. Mr. Walter Rye, the well-known East Anglian archaeologist, is in charge of the excavations.

THE Chancellor of the Diocese of Peterborough (Mr. G. H. Blakesley) has heard, at Northampton, the petition of the vicar and churchwardens of Towcester for a faculty empowering them to remove the east window in the parish church and to substitute, as a memorial of the Queen's Diamond Jubilee, one which has been purchased at a cost of £320. The application was opposed by Major Price Blackwood on behalf of a large number of ratepayers, on the ground that the meeting which decided on the new proposal was illegal, and that the present east window was a memorial one placed there sixty years ago. After a hearing lasting six hours the faculty was refused.

At a recent business meeting of the R.I.B.A. Mr. W. Woodward called attention to the proposal of the London County Council to seek Parliamentary powers to amend the London Building Act (1894). He made suggestions for the opinions of members of the Institute on the subject to be represented to the County Council, and the Chairman promised to lay the matter before the Institute's Council.

To build a villa on property the mere ground rent of which is £3000 a year is a feat of extravagance which could only be achieved by the modern millionaire; and now that Barney Barnato's mansion has passed into the safe hands of Sir Edward Sassoon, Mr. Belt's new house is the most sensational one in Park Lane. At first sight it looks more like a villa on the Thames than a mansion in one of the most fashionable thoroughfares in town; but it is stated that the secret of its Architecture lies in the fact that the Duke of Westminster would not allow a house of the ordinary height to be built on that site. The rooms of the house are oddly arranged, all the rooms on the ground floor being evidently built with an idea of receptions, while the chief beauty is the winter garden, which is really a forest of green, with any amount of water to supply the fountain. Upstairs the suites of rooms are somewhat suggestive of flats.

THE London County Council has had under consideration the Fire Brigade Committee's recommendation that certain work in enlarging and altering the Hampstead fire station should be entrusted to the Works Department, at an estimated cost of £4900. This matter has several times been before the Council. Some weeks since tenders were invited for the work, and the lowest being so largely in excess of the architect's estimate, it was decided by the Council to accept none of them. An amendment to the proposal, that the committee be instructed to advertise for tenders, was carried.

MR. THOMAS ROSS recently lectured on "The Minor Churches of Scotland," in the Song School of St. Mary's Cathedral, Edinburgh. He remarked at the outset on the great activity in church building during the twelfth century, when the Norman style prevailed, and showed that there are about seventy sites in Scotland where there are traces of Norman work. In some instances these are very slight, consisting of a few scraps of chevron ornament, as at Ormiston and Forgandenny; at others of tolerably complete churches, as at Leuchars and Dalmeny. These two churches, with the fragment at Tynningham, were shown to belong to the same period of the fully developed Norman Architecture, the latter being probably the richest example of the style in Scotland. It was observed that the square east end prevailed over the apsidal

east end, as indicated by the remains, in the ratio of about three to one, and that there are still standing, either wholly or in part, some fifteen or twenty chancel arches. Those at the churches just named, and at Legerwood, Duddingston, St. Blane's, Birnie, Gullane, and Buncle, were described—the latter, from its extreme simplicity, being probably of very early date. Various other specimens of the style were alluded to, such as Muthill, Dunning, Monymusk, Peterhead, Edrom, and Stobo. Passing on to the next century, it was seen that most of the great cathedrals and abbeys were then in progress, and these absorbing most of the wealth and labour of the country, fewer minor churches were erected than in the previous period, and that generally they were of a very plain and simple design as compared with the Norman churches.

THE churches at Airth, Kirkliston, and Bathgate are examples of transition work, and at Dunstaffnage, Skipness, and Killeen in the west there are fine examples of early Gothic work. Especially may the first-named be regarded as one of the most beautiful early Gothic churches in Scotland. In the east, at Pencaitland, Prestonkirk, Luffness, and Upper Keith, there remain fragments more or less complete, showing the Architecture of the period, and in other parts of the country, as at Auchendoir, Altire, Rattrayhead, Culross, Farlane, and Prestwick, are to be found other examples, all generally in a very ruinous condition. During the fourteenth century there was a cessation from church building to any great extent, till towards its close a revival began, and henceforward the ecclesiastical Architecture of Scotland assumed a nationality which continued to characterise it till the seventeenth century. This in a large measure arose from the action of castle building on church building. Examples of the latter style are very numerous, and often fairly well preserved, in part at least, many of the best specimens being those known as the Collegiate Churches, of which between thirty and forty were built between the end of the fourteenth century up to within a few years of the Reformation; only a few of these churches were ever completed, most of them wanting the nave. At Dunglas, Biggar, Tullibardine, Innerpeffray, and Foulis Easter we have examples of this class in a completed state, and still standing, all of them containing features of great interest and beauty, Foulis being remarkable for Scotland in the possession of three large paintings of pre-Reformation date. It was shown that many of the churches of this period in their interiors bore a great resemblance to the halls in the castles, such as Queensferry and Yester, and that at a later time the same kind of details were used in both, as at Stobhall, where the church and the turreted mansion are combined in the same style. This church at Stobhall is of peculiar interest as still retaining many of its original features, which were so generally destroyed as being considered monuments of idolatry.

THE Guildhall enquiry re the Cripplegate fire has been adjourned until January 4th. One of the last witnesses called was Mr. J. W. Penfold, architect to the Goldsmiths' Company, the freeholders of the Cripplegate Estate, who, questioned as to whether he agreed that the erection of fireproof buildings in place of those destroyed would cost 50 per cent. more, replied that it all depended upon the degree to which the buildings were fireproof. The Company would never think of building a warehouse in the way Winchester House was constructed, as the cost would be too much and the rent more than the people would be able to pay. He thought a reasonable suggestion was that the different stories should be isolated by concrete floors. If that were done the probability was that in the case of a building becoming ignited by a fire on the adjoining premises, the flames would not spread below the top concrete floor.

WHILE digging operations were going on at Maiden Cross, Hexham, a large and curious stone was found. This has been examined by Mr. C. C. Hodges, architect, and he thinks it is

as early as the fourteenth or, perhaps, the thirteenth century, and that it is the base stone of the western sanctuary cross which stood on or near the site of the house at Maiden Cross. The base of the eastern sanctuary cross has long been preserved in the yard at the Union Workhouse, and that of the northern cross is still on the top of the Cross Bank. The southern cross was on the top of the Gallows Bank. These four crosses marked the outer boundaries of the privileged area, and were placed on the main roads into the town. The large stone found is very well cut, and has been used in late times to form a "creeing" trough, and to this fact it, no doubt, owes its preservation.

WE hear on credible authority that Mr. E. Ingress Bell is retiring from the War Office. It is a fact that Mr. Ingress Bell has of late been very considerably engaged in private practice in association with Mr. Aston Webb.

THE Metropolitan Music Hall in Edgware Road stands upon the site of the old "White Lion," which was built in 1524. The music hall, however, was not built until 1862, and now appears in a glorified form, after being closed since March last. Sir Thomas Fardell, L.C.C., and Mr. John Aird laid the foundation stone of the reconstructed Theatre of Varieties in August last, since when the present building has rapidly taken shape. Mr. Frank Matcham is the architect, and the plans have received the sanction of the County Council. Every part of the house is of fireproof construction, and in addition to nine separate entrances and exits and to the requisite fire appliances, a safety curtain of iron and asbestos completely isolates the stage from the auditorium. The exterior is in granite and Mansfield stone, of a light terra-cotta colour, with lofty minarets.

At a meeting of the Socratic Society, Mr. F. A. C. Morrison read an interesting paper on the application of colour to sculpture among the Greeks. He gave a very clear account of the practice of colouring both buildings and statuary in all periods of Greek Art, and said that the modern aversion to coloured marble was due to some extent to a misconception. In the early stage, no doubt, the Greeks used colour to conceal the deficiencies of the chisel; but in the fifth century the effect of colour was to heighten the beauty and to bring out the characteristic features of works of art.

"HUMOUR in Art" was the title of a lecture given in connection with the Storey Institute series, Lancaster, by Mr. J. F. O'Hea. The lecturer referred to the severity of the earliest art, and then pointed out that the Greek must have his humour, so he invented the series of hideous masks which used to be worn at their religious festivals. That gave origin to the form of play called masks, which were popular at the time of Elizabeth. The Greek was robbed of his mask by the Roman, and the Roman by the barbarian, who, himself turning artist, gave us the fine specimens of Gothic Architecture which adorn our cathedrals. Two of the earliest specimens of caricature in art were found beneath the seats in the stalls in the cathedrals of Limoges and Strasburg—one represented a prominent preacher as a dog teaching fowls that to be easily cooked they should not grow feathers. The Renaissance brought forth a crowd of artists who devoted themselves to humour. He gave types of caricature by Hogarth, Rowlandson, Gillray, one by Rowlandson representing two doctors debating, while Death came and wrote the last prescription. Hogarth was undoubtedly, the greatest humorist, moralist, and satirist of any time or clime. He had had numberless imitators, who came a long way after him.

THE City Commissioners of Sewers have laid before the Improvements Committee of the L.C.C. plans showing proposals for the formation of a new east and west thoroughfare directly connecting London Wall with Smithfield, and passing through the district affected by the recent great fire, and also of a new

street passing from Redcross Street to Falcon Street by way of Hamsell Street. In the opinion of the Improvements Committee, these proposals do not provide for such a rearrangement of the narrow streets on the area affected by the fire as would prevent the recurrence of a great conflagration, and the proposals therefore in their present form do not commend themselves to the Committee, who have accordingly informed the Commissioners that any improvement to be actually undertaken should provide primarily for the lessening of danger by fire in the district in question.

ANOTHER of the County Council's undertakings will, it is probable, make a practical move early in the new year. That is the new housing scheme on the ground at the back of the new Gallery of British Art. The start has been delayed by the necessity for overhauling the estimates of cost since the plans were first made. There has been an advance in wages and the cost of material sufficient to make all the difference between a paying and losing scheme, and some re-adjustments have had to be effected. That has now been done, and the work may be commenced with little further delay. It will afford first-rate dwellings of their kind for about 4300 persons.

ON the front page of this number we reproduce a sketch of a roof screen from Atherington Church. The sketch shows the whole screen, about 18ft. from the ground. The screen has been described in the transactions of the Devon Architectural Society as the most magnificent specimen of carved screen-work in the county of Devon, which, of course, is famed for its lovely screens of the Perpendicular period.

THE theatre at Shoreditch has been reconstructed. The auditorium is now one of the largest in London, being about 70ft. square, and has been treated as a three-tier house. On the ground floor are orchestra stalls, pit stalls, and pit; on the first tier the grand and family circles; on the second tier, the balcony, and on the third the gallery. The construction is entirely of concrete and steel, and, in spite of the great width (about 70ft.), only two light steel shafts are used, thus ensuring an uninterrupted view of the stage. The decorations are late Italian Renaissance, and the domed ceiling, one of the largest in England, being over 50ft. in diameter, has been specially designed and executed by a Parisian artist, the subjects being the Drama, Opera, Music, and Literature. Over the proscenium opening is another large panel by the same artist, being the Glorification of the World by Tragedy and Comedy. Mr. Crewe, the architect, has made a special endeavour to provide that the electric lighting shall form an absolutely integral part of the decoration, which result has been obtained by decorator and electrician working absolutely together under the direction of the architect. The scheme of colour throughout is ivory and cream, relieved by gold and copper, and the upholstery and hangings are in Florentine red. Besides a grand saloon, there are spacious and handsomely-decorated saloons for orchestra stalls, pit stalls, pit, balcony, and gallery, and separate retiring rooms on each tier.

SPEAKING at Hammersmith on the mosaics at St. Paul's Cathedral, Sir W. B. Richmond, R.A., said that Wren intended all the flat and curved spaces to be covered with mosaics, but funds were wanting. Coming to his own work Sir William said his proposal to employ English workmen on the mosaics left the committee somewhat aghast. But he thought that English workmen ought to be employed to decorate the great mother-church of their country, and he determined to train his own workmen to work under and with him. He would say to anyone engaged in artistic work that unless he kept in absolute touch and sympathy with his workmen and treated them as brother artists, he would get no good work

done. Of his workmen, whom he could call his friends, not one had left him. In a shed attached to his house, about six of them began to work and went on for six months from eight in the morning to six in the evening, and during that time finished the two, big spandrels now up in St. Paul's. This method was very expensive. They then started on the wall itself. After describing the method of work, Sir W. B. Richmond remarked that he thought they had in England as good a school of draughtsmen as the world could produce or had produced. His workmen had shown extraordinary intelligence in following out what he had taught them, and the artistic spirit they had developed enabled them to modify the colours in the designs according to the light in which the mosaic was placed.

THE third of Lord Rowton's series of "Poor Man's Hotels" is now finished at Newington Butts. The first house, situated at Vauxhall, has 475 cubicles; the second, in King's Cross Road, accommodates 677 lodgers; and the new premises will sleep 805. The site of the latest house is within a few yards of Newington Butts, and has its entire frontage on a public recreation ground which was formerly the churchyard of St. Mary, Newington. In all the important details of construction the principle adopted at Vauxhall and King's Cross has been followed, experience having proved the soundness and convenience of the original system. The sanitary, lighting, and fireproof provisions are on the most perfect scale, and the comfort of the lodgers has been provided for with the forethought that is founded on an intimate practical acquaintance with their needs. A fourth "Rowton House" is in course of erection in Hammersmith, and a fifth is being arranged for in Whitechapel.

WHEN the Jubilee procession passed Hyde Park Corner permission was then granted to the park-keepers to erect a stand between the railings and the lodge on the west side of the entrance. In so doing they evidently narrowly escaped the bringing about of a very serious catastrophe, for they pushed the heavy pillars and railings considerably out of the perpendicular, and had these fallen on the crowd below many lives must have been lost. The country has presumably to pay for setting right this bad construction, and judging by the time which it has taken, the bill will be a heavy one; for to rebuild these few yards of paling not only has large scaffolding been erected, but four months at least have been spent on replacing the pillars, and it looks as if it might last another four. It is against this gross dilatoriness that every one who concerns himself with the picturesqueness of our public places must protest.

THE first span of the large iron curtain which separates the stage from the auditorium at Olympia has been successfully swung into its place. The width of the proscenium is 460ft. In order to make a fireproof screen across this space, two steel towers, each 90ft. high, have been erected at a distance of 110ft. from either wall. To sustain the iron curtain, which runs in a groove let into the sides of the towers, two steel spans, each of which is 240ft. long, 45ft. high, and weighs 35 tons apiece, are necessary.

A LOCAL architect (says the Western Mail) went to the trouble and expense of preparing plans for the new Town Hall and Law Courts at Cardiff and then forgot to send them in. The same authority adds that in one of the plans for a new Town Hall for Cardiff the internal arrangements were in such a shape that it would have taken one of the borough engineer's clerks about three hours to find one of his assistants.

THE old-fashioned whitewashed and red-roofed hostelry at Putney, known as the Old Crab Tree, will shortly disappear. The place is found to be quite inadequate for modern requirements, and it is to be demolished within

the next few weeks to make way for a more elaborate and handsome building now in course of construction. The present building has stood for some 400 years, and has outlived the small village of Crab Tree which formerly stood round about it. The chief interest of the Crab Tree lies in its cellars. There can be seen to this day the commencement of a passage which formerly led into the river, into which, so tradition has it, contraband goods were dropped from boats in order that they might, at a convenient time, be dragged into the tavern. A mysterious chimney, too, leads one to imagine the former existence here of an illicit still.

THE Board of Inquiry into the cause of the extensive fire at Dover Castle, after taking evidence, inspected the chimney stack in the vicinity of which the fire broke out. It was taken down in their presence, and it was then found that the flue linings were all damaged, and in some cases smashed, while the brick and stonework was very defective. The experts advised the Board that bad material had been used in its construction, and there was no doubt that the fire was due to these defects.

THE dwarf screen in Probus Church has been extended as high as the capitals of the pillars. The existing work was constructed by the late Mr. Street, when the church was restored in the year 1851, and is composed mainly of old oak carved bench-ends, with modern circular tracery panels, and moulded capping over, and of the remains of the door and other posts of an ancient screen. The date 1591 is on one of the panels. Mr. Street's work has been left untouched. The addition, to the height of 8ft. above the old work, consists of three bays on each side of the doorway, with heads of tracery and carving of perpendicular character and varied design, a tracery head of similar character in the doorway, and a beam or cornice richly carved, and surmounted by bradishing. The whole of the work is in the best English oak. The total height of the screen as completed is 12ft. 3in. from the chancel floor.

IN connection with the Edinburgh School of Applied Art, an exhibition of work by the students has just been held in the Royal Scottish Academy Galleries. A number of the drawings were architectural studies from Kirkcaldy, Dunfermline, Dysart, &c., along with reproductions of ironwork and old furniture. In the second octagon there was a very interesting collection of drawings of a varied nature by two of the students who had been engaged in a sort of art survey of the old buildings in and around Edinburgh. When anything quaint or interesting was found in Architecture, metal work, or furniture a copy was made for preservation in the portfolios of the school. A large amount of excellent material has already been secured, which, but for this survey, would have been lost to Art, as many of the old buildings are in process of demolition or reconstruction.

THE A. and P. Roberts Company, operating the Pencoyd Ironworks, it is stated, has received a cablegram from Utrecht, stating that the Company's bid of £94,000 is the lowest in the competition for the contract for the material and erection of an extensive steel bridge over the River Yssel, near Westervoort, Netherlands. The bridge is to be built for the Government of Holland. The Pencoyd Company has not yet been advised whether the bid has been accepted, but Percival Roberts, in speaking of the matter, said that even if it was not awarded the contract, he was pleased to know that the Company's figures were lower than those of the foreign competitors. The cablegram informed Mr. Roberts that the next lowest bid was £97,000. The Company has just closed a contract for about four thousand tons of iron bridge material for the Imperial Railroad of Japan, which is owned and controlled by the Japanese Government. The material is for the construction of smaller bridges on the line of the railroad.

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THE ARCHITECTURE OF THE RENAISSANCE.

By PROFESSOR AITCHISON, A.R.A.

LECTURING before the Architectural Association of Ireland on "The Architecture of the Renaissance," Professor Aitchison, A.R.A., said the interest in Renaissance Architecture was of an entirely different kind from that which enthralled them in Gothic. The men of the Renaissance were actuated by entirely different desires from those of the middle ages, and were also of most vigorous physical and intellectual powers, but were by no means so overflowing in invention, and the architects were absorbed by a new desire of giving the simplicity and design of classical Architecture to their own architectural works, and, being mostly artists, they wanted to make

STRIKING PICTURES OF THEIR BUILDINGS

in architectural language, and they were by no means troubled with any desire for feats of construction, for they were not constructors, and had Roman authority for massiveness. They had, however, a love of beauty that has been exceeded only by the Greeks. He did not think the Italian architects ever quite equalled in their works the dignity and impressiveness of Roman buildings, though there was this to be said in favour of them, they had only a part of the revenues of a great nobleman, or a great city, to expend, while the Romans had a part of the plunder and taxation of the civilised world. It was, perhaps, unfair to judge of what the Romans could do from the trifling remains that were left, but he recollected nothing of them that possessed that exquisite-ness of some of the best early Renaissance buildings, not to speak of the semi-architectural monuments of the Renaissance. He might, however, say that for style and beauty the Renaissance still held its own, and showed its visual superiority over every sort of work that had been done since the

PALMY DAYS OF ATHENS.

There was a long list of architects of the fifteenth century—from Bendetto da Majano to Michel Angelo—of whom, perhaps, Peruzzi and Bramante were the greatest, but these early Renaissance men were so full of energy and capacity that they could turn their hands with success to almost anything. One had but to read the account that Leonardo da Vinci gave to Sforza of what he could do, and the life of Benvenuto Cellini, to see that these men could sing you a song, or make you verses, build a ship or lead an army, paint a picture, cast a statue, or engrave a die with almost equal felicity and success. There was a native vigour about their minds and an inventiveness which rendered their work more interesting to us than when the whole of Roman Architecture had been measured and mapped out, as it were, by the middle of the sixteenth century. Buildings could then be made by recipe, and could be criticised by their supposed exact similitude to ancient Roman work. The Architecture of the fifteenth century was done by men who still retained memories of a former style and of former austerity, and had been spurred to invention by the first

SIGHT OF ROMAN MODELS.

The Palazzo del Consiglio at Verona—attributed both to Fra Giocondo and Formentone—the Communal Palace at Brescia, the Church of the Madonna dei Muracoli at the same town, the Scuola de St. Marco, and the Palazzo Corrado-Spinelli and the Manzoni at Venice, and some of the more striking tombs, would do more to raise their admiration for these lovely works than a long list of more pretentious and duller works; although Palladio's great hall at Vicenza, Peruzzi's Palace at Rome, and Michel Angelo's staircase at the Laurentian Library, and his chapel to the Medici should not be omitted, nor some of the lovely works of Bramante; in fact, there was hardly a town in Italy that had not got some masterpieces of the early Renaissance, for it was the mingling of Christian truths

with Pagan myths that gave it one of its charms. The lecturer next gave an interesting description of the Corrado-Spinelli Palace at Venice, which, although small, was of very artistic device, and was supposed to have been designed by one of the Lombardi—a family which had produced as many architects as that of the Du Cerceau in France. This palace, although a jewel in itself, would, but for its artistic perfection, be almost unobserved by the side of the gigantic Palazzo Vendramin and other large palaces on the Grand Canal. There was another small but most charming palace, which Browning once bought, rather later than the Palazzo Spinelli. The lecturer next said a few words on the quaint inventiveness of these early Renaissance men, and, proceeding, described the two palaces built by Baldassarre Peruzzi for the Marquis Messini in the Via San Pantaleone, the great charms of which were their plainness and elegant proportions. The lecturer then dealt with the works of Palladio, who conveyed the grandeur of expression of the antique. His basilica at Vicenza was one of his most impressive works. The Italian Renaissance came about by a triple influence—patriotism, intellectual freedom, and taste. Italy, torn by faction or ground under the feet of execrable tyrants, loved to see buildings that reminded her of Italy's greatness. She hated to see a style that reminded her of ecclesiastical fetters and austerity, while the cultivation so earnestly pursued for more than a century made her long for dignity, grandeur, simplicity, and breadth of ecclesiastical buildings. The lecturer, proceeding, said he had dealt with the four epochs of Architecture beginning from the time of the Greeks. Each period showed the peculiar genius of the people, and their progress in intellectual development. It was true he had only given a glimpse of the perfection of Greek Architecture, of the dignity and magnificence of Roman, of the

SOARING FLIGHTS OF GOTHIC,

both constructively and æsthetically, and of the greater perfection and artistic beauty of the revived Roman; but he hoped he had whetted their appetite to know more about Architecture, and to take more interest in that of the present day. It was from the numbers, knowledge, and taste of the lovers of every art that its perfectness developed. They could not believe that if the public generally were as dead to the flights and perfection of poetry as they were to Architecture, they should ever have had Tennyson. Did they think painting would have flourished as it did in Italy if the painters had not recognised the love of the people for it, and had not recollected the Cimabue who made the first step forward from the old Byzantine mechanism had not had its picture borne in triumph through his ward, and that it was ever afterwards called the Joyous Ward. They must remember that Architecture alone of all the fine arts told the history of the cultivation of the people, at the time it was done in its own country, while the works of every other fine art could be and were exported. They should remember the boast of Pericles to the Athenians, "We love the beautiful." If they did not love it nowadays how could they expect to rival those who did? He hoped that the imperfect description he had given of the great progress that had taken place in old times would have some effect in making his hearers see for themselves the glorious beauties of continental Architecture during the periods he had dealt with. The lecturer, in conclusion, said much as he desired the Architecture of the Renaissance, he must admit that the architects of those days were not constructors as were the architects of the middle ages. They were painters and sculptors, and they painted their architectural designs, as it were. He urged on those present to spare no pains and no effort to become masters of their Profession. The poets had set them an example in this respect. Let them consider Milton, and how Longfellow translated the Italian poet in order that he might thoroughly study their style.—Professor Aitchison exhibited a very large collection of photographs, which formed a unique record of the period of the Renaissance.

HOUSE DECORATION.*

By L. A. SHUFFREY.

(Continued from page 440.)

WALL surfaces should be squared up; a narrow slip of paper over door or window architraves is best got rid of, also the long spandrel piece over an arch. It is better to break it forward with a vertical line and break the cornice over it. Sofits of arches should not be left plain as ceiling, but should be treated with the same material, or to look the same as arched mould. These are points which cannot well be carried out unless done at the time of building. I have often had to ornament a ceiling where all the mouldings have had to be suspended, as it were, from the ceiling on account of the fixed position of the cornice. In low rooms the plan of treating the whole chimney-breast as a feature, instead of applying the chimney-piece, is a good one.

DINING-ROOM.

The division of the wall space in this room might conveniently be done by a wood skirting, plain face and rail, to a height of 2ft. 9in. (pictures could then, if of large size, occupy the space up to the frieze rail), the cornice, frieze, and rail, grooved for picture hooks, being one composition. The heavy Early Georgian type of cornice and dado always appears to suit a dining-room. If it gets the morning sun the main filling of the walls might be a wall-paper two tones of deep green, the ground being warm in tone, with a lighter and colder print; the paint a golden green, and the flat of dado a deep rich red, inclining to crimson; cornice and frieze tones of citrine, and the ceiling a still lighter tone. If the owner of the house has any oil paintings they are likely to be hung in this room, and the question of the best background colour has to be considered. This may very well be studied in the public galleries which we have access to, and that used in the entrance-hall of the National Gallery appears to me the most satisfactory. It is a flock paper printed in two tones of a mellow, dark green, inclining to olive. It is there very pleasantly contrasted with dull red marble columns. Both the colour and texture contrast well with the oil paintings, and give the very greatest value to them. There are other colours adopted, including red, which, I believe, is generally considered a good oil picture background, but none appear to me so satisfactory as this. At South Kensington a dark neutral green wall-paper of Morris's is very much used, but it appears to me too cold or grey for the purpose. The question whether the cornice of a room should be treated dark, similar to the paint or light like the ceiling, is always cropping up, and although it is rather trying to darken some nice plaster work, which looks so fair in its natural white, I consider it should be treated with the walls, not necessarily so dark, but sufficiently so to prevent the sudden contrast from dark to light just below the cornice.

THE DRAWING-ROOM.

The decoration of this room, of all others, should be bright and cheerful, and should light up well. Here, light or white paint is in place. For this room the mistress of the house must be consulted, and the various parts thought out with furniture hangings and carpets, to make the picture complete when furnished and occupied. Should the lady be a brunette, a cream paint and walls of a yellow tone may be suitable; if a blonde, a bluish grey or grey-green. The architectural panelling out of the walls of a room is but little practised now, although nothing gives such size and dignity to an apartment, whether by framing with large panels or by painted styles and rails. The tendency of late has been to ignore symmetry, and to indulge in corners and recesses, and small windows in odd places, by which a certain picturesqueness is obtained, but unbecoming cross-lights are developed, and a mere prettiness without dignity is the

* A paper read before the Architectural Association on Friday, December 17th.

result. There is little fear of stiffness in a drawing-room, as when the furniture and upholstery come, the severe lines of an architectural treatment of the walls will be pleasantly contrasted.

LIBRARY.

In this room a quiet, restful tone of colour should be aimed at, bearing in mind that books are the best ornamentation of the room, and choosing colours which will give value to their bindings. The fittings are best of hardwood, and, as it is inconvenient to reach books higher than about 7ft. 6in., this should be regulated to the height of them. A rail at this level (grooved for picture hooks) may be conveniently carried round the room where the bookcases do not occur. A fairly strong green is, in my opinion, the best to show off bindings, and this may cover the space above the bookcases, with a deep vellum coloured cornice and ceiling. The floor should be felted all over. In decorative work it seems to me to be very important to get rid of all boards.

BEDROOMS.

The deep frieze treatment for these is generally most convenient, and the chief characteristic of the colouring should be freshness. Here white paint, which in sitting-rooms makes the furniture, hangings, and carpets look dirty, is in place, and should be the standard of cleanliness and freshness generally in the room. The space above the picture rail looks quite well in plain distemper, but may have a running frieze in colours with good effect. In the ceiling I would plead for a little ornamentation to relieve the absolute blankness, which is so very general. Colour is too subtle and indefinite to talk about with advantage. It is relative; there is no such thing as a bad colour when regarded alone, as there may be a situation where that particular colour would be the best in combination with others for its position. A parti-coloured suit will keep fresh longer than a suit of one colour, and the same holds good in decoration.

CONTRASTING COLOURS

enhance the value of one another, and it is quite possible, by altering one colour in a decorated wall or ceiling, to give freshness to the whole, which before may have looked dirty and worn out. The coloured decoration of a room should be the conception of one mind, and the plan I advise is to make your scale sketch and stick to it as you would to your scale drawings in a building. I am well aware that in practice this cannot always be carried out, and it comes to doing the best you can under the circumstances, and if your lady client has set her heart upon shrimp-pink or hedge-sparrow-egg-blue for her drawing-room, then do the best you can to make a satisfactory combination in which those colours predominate. What I should like to impress upon all who are not in the habit of doing so is that a constant study of colour brings great enjoyment with it. The critical faculty can be used everywhere. As you study old buildings to improve your sense of form and proportion, study natural objects for improving your colour surface. The most unlovely object if left alone will be covered by Nature with the most beautiful colours, and the book is open for our delight.—The President said

IN DESIGNING BEAUTIFUL HOUSES

they had not the opportunity of decorating them at the time they were built. They wanted a scheme of colour-decoration before them when building a house. In the decorative work they were all apt to consider each room separately, and not a general scheme for the whole house. They found their clients wanted different colours, and it was rather an awkward point to deal with, altogether upsetting their idea for carrying out some general harmonious scheme for the decoration of the whole house. There was one question they had to face nowadays which gave them an advantage, and that was the use of electric light as a means of artificial decoration. Its advantage over gas was that they could use the same colour and get the same effect by daylight as by night light. He thought

THE TREATMENT OF CEILINGS

and walls had of late years been somewhat overdone by the enormous quantity of raised and other ornamental materials in the market. Especially were ceilings subject to this tendency. He was not advocating a plain ceiling, because he thought some of the treatment by these raised materials was most effective. If they had an ornamental ceiling it was best to have a plain treatment of the walls, and the reverse, a plain ceiling if they had ornamental walls. With regard to varnishing surfaces, he had always found it difficult to get painters to finish with a coat of varnish in consequence of the contended difficulty in working it. Of course it had a different effect, and he agreed with the lecturer that what they wanted was a dull and not a bright effect given by varnish. In dealing with old buildings, if they had a room of bad proportions they could very materially improve those proportions by the colour and the way in which the walls were divided up. If, as Mr. Shuffrey suggested, the architect had to consider the complexion of his client's wife and the ladies of the house, it would be adding one more difficulty to

A CHERISHED SCHEME OF DECORATION.

—Mr. Cole Adams, proposing a vote of thanks to Mr. Shuffrey, mentioned that his experience of the use of Stockholm tar for outside timbers was that it was ultimately affected by the sun. He recommended as a remedy the use of Brunswick black thinned down by turpentine as required. It was a fast colour, and he had used it on a garden house, where it had been preserved for four years. He agreed with Mr. Shuffrey about painting cement, which looked very nice. He did not know anything more distressing than cracked ceilings. He had seen speculative houses built fifty years ago, when speculative building was good, in which there was hardly a cracked ceiling. Probably that was because in plastering the men understood the trade better than was the case nowadays. As to wall papers great value would be got out of the ordinary brown paper. For a wall space or dwarf dado it was most useful, was very durable and clean, and would last a long time without showing the dirt. The speaker urged that it would be impossible to consider the complexion of the client's wife because they would have to consider that of the visitors as well. They must consider all classes when doing decorative work. For a drawing-room he did not think there was anything to equal

SOME SHADE OF YELLOW.

—Mr. W. Millard seconded the proposition. He said he knew it was not the rule, but he would have liked to see a specimen amongst those exhibited of the cornice made darker than the wall. With reference to patterns one really got wearied with them. He had often thought that it would be a grand move if they could decorate a house by themselves without having any patterns at all. A decorator told him that the first thing he did was to find out what kind of furniture the people possessed, and worked up a scheme of decoration from that. He (the speaker) was inclined to think that the modern idea of decoration was rather overdone, and that it was a question whether they should not consider what they would leave out. In fact, he thought sometimes there was a great deal in the art of seeing what they could omit.—Mr. Shuffrey briefly replied.

At the commencement of the meeting at which Mr. Shuffrey's paper was read the President proposed a vote of condolence with the family of the late Mr. J. L. Pearson, R.A. He said all of them had followed the splendid works of so great a master in the Profession. One's earliest recollections of Church Architecture in London were associated with the name of Mr. Pearson. The many buildings of his in London were really grand works of this century. They would miss very much from their meetings so great a master, and more particularly when dealing with Church Architecture.—The secretary formally seconded the vote, which was carried in silence.

BUILDERS BEWARE!

THE LAW OF LIABILITY.

MR. HENRY WADDINGTON, of Bradford, who is legal adviser to the Yorkshire Federation of Building Trade Employers, at a recent meeting of that body, delivered an address upon the Workmen's Compensation Act. To modify the harshness of the doctrine of common employment, he said the Employers' Liability Act of 1880 was passed, by which Act workmen, as defined by the Act, had a right of action conferred upon them against their employers if injured in any of five specified ways. Several attempts had been made to pass a more satisfactory Act, until at last the new Workmen's Compensation Act was carried last session. The

MOST REMARKABLE FEATURE OF THE ACT

was that, for the first time in the history of English legislation, liability had been cast upon an individual to pay compensation for personal injuries which were not the result of any negligence or unlawful act either on the part of himself or his servants, for whose conduct he was legally responsible. In fact, the employer who came within the scope of the Act was made compulsorily the insurer of the servant against injury by accident, however caused. Section 1 provides for compensation for personal injuries by accident arising out of and in the course of employment. The word "accident" was likely to give rise to much dispute. It was provided that the employer was not to be liable under the Act if the injury did not disable the workman for at least two weeks from earning full wages. This would have the effect of largely diminishing the number of claims by workmen. Section 2 provided that notice of action must be given as soon as practicable after the accident. This was an indefinite phrase, and might lead to disputes. Section 3 was a kind of contracting-out clause, as it provided for a scheme of compensation and insurance which should receive the sanction and approval of the Registrar of Friendly Societies. Section 4 dealt with sub-contracting, and was designed to prevent an evasion of liability. It made the head employer or the one who engaged the sub-contractor (in the Act called the undertaker) liable to pay compensation whenever the contractor was liable to pay to the workman. Section 5 would be very useful, and provided that

THE WORKMAN'S CLAIM FOR COMPENSATION

should be a first charge in the event of an employer's bankruptcy or arrangement with creditors. Section 6 provided that, where a legal liability for injury was created against a third party, other than the employer, the workman might proceed against such stranger or the employer, but not against both. In explaining Section 7 he observed that the building trade was not an employment within the Act unless the work was being executed on, in, or about a building over 30ft. high, but there was no guide for the determination of the height of a building. Everyone (except a workman who tumbled off a 20ft. wall into a 20ft. basement) would agree that the height ought to be measured from the ground level, and not from the basement. What the ultimate definition would be could not be said, but as the object appeared to be to limit the application of the Act to the most dangerous work of the building trade, there seemed no reason why the measurement of a building should always be taken from the centre of the building. Moreover, the mere fact that a building in course of construction or repair was over 30ft. in height did not bring it within the meaning of the Act; scaffolding must be in use. The last section was a curiously worded section. Apparently a workman might still contract himself out of the Employers' Liability Act of 1882, or agree to forego any right of action at common law existing on July 1st, 1898. But no contract agreeing to forego any right of compensation would be operative to deprive a workman of his rights under this Act.

Professional Items.

ABERYSTWYTH.—At St. Mary's (Welsh) Church a beautiful executed window has been erected to the memory of the late Dean Phillips, formerly vicar of the parish. The window, which occupies a position in the church on the north side of the nave, is of stained glass, and consists of two figures, one being that of St. Mary, to whom the Church is dedicated, and the other being that of St. David, the patron saint of Wales, to whom the cathedral with which the late dean was connected is dedicated. The design was carried out by Mr. Alf. O. Hemming, Margaret's Street, Cavendish Square, London.

ASTON.—For the new higher-grade school about to be built at Aston, under the auspices of the School Board, a site has been acquired at the corner of Whitehead Road and Ettington Road, opposite the Technical School. In some respects the new school will differ from any other school yet erected, as, in addition to providing accommodation for 560 higher-grade scholars, room will also be provided for male and female deaf scholars and pupil teachers. The general arrangements consist of a school for 280 senior boys and 280 senior girls in separate departments, with two teachers' rooms to each department. A chemical laboratory for fifty scholars and a physical laboratory also for fifty scholars is provided. A properly equipped gymnasium is also to be built, approached direct from the playground. The deaf school provides accommodation for ten children of each sex with separate teachers' room, and is a department entirely apart. The pupil teachers' centre is for the instruction of 120 female pupil teachers, and is approached by a separate entrance and staircase. A caretaker's house is also to be built facing Whitehead Road. The principal façade is to Ettington Road, and although the schools comprise four distinct departments they are arranged so as to form one imposing block of buildings. The style of Architecture is in the form of Renaissance. The composition is well balanced, the main hall being carried up two stories, forming the central feature of the design. The materials will be red brick and terra-cotta, with tiled roofs. The estimated cost (exclusive of site and furnishing) is about £12,000. The architects are Messrs. Crouch and Butler, of Waterloo Street, Birmingham, whose designs were placed first in order of merit by Mr. E. R. Robson, F.S.A., the consulting architect to the Education Department.

DUNDEE.—Early next year building operations will be commenced in connection with the new temperance hotel which is to be provided at Dundee. The plans, prepared by Mr. Robert Hunter, architect, show an imposing edifice of five stories and attics, the general design being conform to that of the buildings in Whitehall Crescent. The total frontage to Whitehall Crescent, South Union Street, and Dock Street, is about 300ft. Externally the building will afford a very pleasing and somewhat artistic aspect. The main entrance, situated immediately opposite the West Station, terminates in a lofty tower of neat design, bow windows being carried up as high as the third story. In Dock Street and Whitehall Crescent the same design is given effect to, bow windows projecting at regular intervals and marking the externals of the principal apartments on the first floor. On either side of the main entrance are pillars and pilasters with moulded bases and carved capitals, and in each of the two other faces any stiffness in outline is obviated by the interjection of this style of ornament, an effect which is heightened by a band of ornate carving running round the three sides of the building. It is proposed to erect nine or ten shops on the ground floor in Whitehall Crescent. The hall will be 50ft. long, while the other rooms (commercial, coffee, dining, smoking, music, &c.) are to be of ample size, the ceiling being 14ft. in height. Ascending from the

principal landing immediately at the office is the grand staircase, which will be abundantly lighted from a large cupola in the roof, and which will also be lighted on each flat by stained glass windows half-way up each flight of stairs, and in which provision is made for flowers.

FLOOKBURGH.—The foundation-stone has been laid of the new church now being erected at Flookburgh. The building now used was built as a chapel-of-ease under Cartmel Priory Church during the reign of George III., and, in addition to its almost hideous aspect both inside and out, is in a position which seems the strangest imaginable for such an edifice. The new church, which is being erected upon a commanding site almost opposite the cemetery, and will cost about £8000, is to seat 450 persons, and will be in the Early English style of Architecture. There will be a nave 62ft. long by 22ft. 10in. wide, at the western end of which will be a massive tower 26ft. 6in. by 25ft. externally, and 53ft. high to the top of the parapet. On the north and south sides will be arcades of four arches—three in the nave and one in the chancel, which is also divided from the nave by an arch 26ft. high. The north aisle roof will be continuous the length of the arcade, but on the south will be interrupted by the organ transept, the gable of which will project slightly beyond the line of the aisle. The height to apex of nave roof will be 39ft., the chancel being about 18in. lower. At the eastern end of the chancel will be a semi-circular apse with stone groined roof, and lit by three lancet windows. Advantage has been taken of the sloping nature of the site to form the vestry under the apse at the east end, equal to 20ft. by 17ft. in area. The church is entered by north and south doors in the tower at the west end. The nave will have a clear story of six lancet windows each side, and the chancel two quatrefoil and one long lancet window. The church is being built with walling of local stone and dressings of Prudham stone, in broken coursed work inside and outside, except in interior of the apse, which will be faced with ashlar. The roofs of the tower, chancel, nave, and organ transept will be covered with stone slates, and the aisles and apse with lead. The roofs and nave seats will be of pitch pine, and the floors of oak blocks laid on concrete bed. The chancel seat blocks will be laid with oak the choir stalls being also of oak. The aisles and passages will be flagged, and the chancel floor laid with encaustic tiles. The work is being carried out by the following contractors:—Masonry, Mr. A. Blair, of Allithwaite; carpentry and joinery, Messrs. Gradwell and Co., of Barrow; slating, Mr. J. Chippendale, of Grange; plumbing and glazing, Mr. A. Moorhouse, of Kirkby Lonsdale. Messrs. Austin and Paley, of Lancaster, are the architects, and are superintending the work.

IPSWICH.—The Ipswich Gas Light Company has just extended its works by the erection of a gas-holder providing new storage for exactly one million cubic feet. The directors entrusted the design of the holder to their own engineer, Mr. J. T. Jolliffe, who made the drawings and drew up the specification and form of tender, and by his own staff and men prepared the foundations on a very treacherous site, it being necessary in places to excavate the ground 15ft. deep and fill in with nearly 2000 yards of cement concrete. The construction of the tank and gas-holder was entrusted to the firm of Messrs. Samuel Cutler and Sons, of London. The material of the entire structure is of superior mild steel, the diameter of the tank being 122ft., and the depth 32ft. 6in. The gas-holder is in three lifts of 120ft., 118ft., and 116ft. diameter respectively, each lift being 32ft. deep. The guide-framing is Messrs. Cutler's patent, the diagonals acting as both ties and struts. The extreme height to the top of the crown of the holder when fully inflated is nearly 140ft. from the base.

KIDDINGTON.—The new screen that now forms the scenery and ornate line of demarcation between the chancel and nave in the parish church of St. Nicholas is constructed of

English-grown forest oak, and is of fifteenth century or Perpendicular Gothic character. It has three bays on either side, and a wide central doorway. The lower parts are panelled up to the transoms, and has tracing work of pleasant design. Above is open work surmounted in turn by pierced tracery, terminating with a chastely carved cornice and pierced cresting of telling outline. The whole blends admirably with the surroundings. The screen has been made by Messrs. Harry Hems and Sons, Exeter.

LEICESTER.—The latest addition to the Baptist Churches of Leicester, "Carey Hall," consists of a chapel and Sunday school, built in red brick with stone facings. It is a free adaptation of the Renaissance style of Architecture, and is a conspicuous ornament to the Catherine Street district. The chapel will seat 900 persons, and can be made to accommodate at least 100 more. The schoolroom seats 500 persons comfortably. Class-rooms and vestries are provided on the ground floor of the school premises. The whole of the ground floor is laid in pitch pine blocks. It has taken nearly fifteen months to build.

MANSFIELD.—The new Church of St. Mark's, Nottingham Road, opened recently, stands well at the corner of Portland Street and Nottingham Road. The west wall of the western aisle comes close down to Portland Street, and above it rises the main west gable, with a fine four-light west window. The bell-turret is placed at the south-east angle of the building, and at the east end the vestries finish with three low gables below the large east window. The external walling is of Mansfield Woodhouse stone, taken from a quarry placed at the disposal of the committee by the Duke of Portland, and the roofs are covered with stone slates and red tiles. The interior consists of a nave and sanctuary under one unbroken roof, with narrow side aisles divided from the body of the church by an arcade of five bays, carried in massive square piers. The passage, or ambulatory, is carried round the east end of the sanctuary with the vestries to the east of it. At the west end the nave and side aisles open into a wide western aisle, which runs across the whole width of the building, and into which, at its north and south ends, the outer doorways open. On the north side of the church, outside the ambulatory, is placed a wide aisle, two bays in length, the western part of which is occupied by the morning chapel, and in the eastern end the organ will be placed. The altar, which stands on three steps at the east end of the sanctuary, is of considerable size. Behind it is the re-table and a carved reredos of oak. The pulpit, with its sounding-board, stands against the third pier of the nave on the south side, and is of oak, with tracery panels, the sounding-board having richly carved cornice and cresting. The main ceiling of the church is of pointed barrel form, with well moulded principals and cornice, and is painted. The floor of the nave is paved with wood blocks, and that of the aisles and sanctuary with Mansfield stone. The details of the interior, which are of a very simple though refined character, follow in manner the fourteenth century style of English Gothic. The architect is Mr. Temple Moore, of 46, Well Walk, Hampstead. The builders are Messrs. Fisher Brothers, of Mansfield.

MONTROSE.—The Montrose Burgh School Board has erected a large Board school to supersede a number of the smaller schools. The building is in the Grecian Ionic style of Architecture. It is a comparatively plain structure, the only embellishments being on the upper story. The frontage to the North Links is 105ft., and to Dorward Street it is 80ft. The walls rise to a height of 55ft. above the level of the pavement. The school has accommodation for 1200 pupils. On the basement floor next to the North Links is the gymnasium—a spacious apartment 47ft. long, 24ft. broad, and 14ft. high—and a class room intended for the teaching of science or any other special subject. This latter room is

divided from the gymnasium by a sliding partition of glass and wood, on opening out which the rooms make a very large apartment of 69ft. by 24ft. The flooring of these rooms is of pitch pine blocks laid on a foundation of concrete, which gives a perfectly noiseless floor. The back portion of the basement is occupied by the bath-room, 60ft. long and 24ft. wide, containing a swimming pond 48ft. by 17ft. The central portion of the basement floor has a fireproof concrete ceiling 9in. thick, and is occupied by cold air inlet, heating chamber, fan, and main air ducts. The school has been provided with Key's patent system of heating and mechanical ventilation. Entrances to the ground floor from the boys' and girls' playgrounds are by short flights of steps to the main entrance doors at either end of the building. From the lobbies open private rooms for the head master and head mistress, which are splendidly equipped, and also the stairs to the upper floors. Divided by glass screens from the lobbies is the general hall. This is a notable apartment, 55ft. long and 22ft. broad, and ascending the whole height of the building. The ceilings of the galleries are all lined with wood, and the supporting beams being panelled with pitch pine, and each gallery being encircled with pitch pine newell posts and handrail, the hall has an imposing appearance. The total cost of the school, when completed, will be about £17,000.

PARTICK.—A new church is being erected at the corner of Lawrence Street and Alexandra Street, Partick, for the congregation of the East United Presbyterian Church. The style of Architecture is thirteenth century Gothic, with generally massive treatment, and simple and severe detail. The central feature of the front is a lofty gable, with broad buttresses at each side. A central buttress of lesser projection divides the gable, and in the lower portion are two four-light windows under flat arches, which spring from the buttresses on each side. Over these are two large triplet windows with cusped heads, occupying the whole space between the buttresses, and recessed under deeply moulded pointed arches. The apex of the gable, which rises over 70ft. above the street, is enriched with a moulded niche, and terminates in a foliated cross. A projecting porch at the south-east corner of the building forms the main entrance, and is more elaborately treated in detail, a richly moulded archway giving access to the wide double doors which open into the inner vestibule. On the west side of the main gable is another doorway, which also forms the hall entrance, and between this and the hall gable, which fronts Lawrence Street, is an octagonal turret, quite plain in the lower portion, and with a series of traceried windows in the upper stage, forming the gallery and hall staircase. The halls and accessory rooms are placed to the west side of the church, but are so arranged that independent use may be made of either, and are accessible from both streets. The side elevations of the church show a series of low four-light windows, with square heads in the lower stage, and in each bay over these, divided by broad piers, are tall two-light windows of lancet shape, with moulded and cusped heads. Internally the same massive and severe treatment is proposed. The nave is divided from the aisles by stone piers, one only on each side, springing from which are moulded arches of wide span. The stone piers are simply splayed, the gallery beams resting on projecting stone corbels, and the inner angles of the piers are carried up to the roof, and form rests for the main roof timbers. The principal roof timbers will be shown, and the ceilings will be lined with wood panelling. The number of sittings provided is 840, and there are also halls for 400 and 200 seated class-rooms, ladies' room, vestry, kitchen, &c. The total cost will be about £7500. The architect is Mr. John B. Wilson, of Glasgow.

PLUMTREE.—The parish church at Plumtree has been restored. In the early part of this year the roof of the church was found to be in an unsatisfactory state, and upon removing

the old lead it was discovered that the whole of the woodwork was in such a decayed and dangerous condition as to render it necessary to remove it and to put on a new oak roof. Messrs. Brewill and Bailey were the architects. The work was rendered necessary because at the former restoration of the church, about twenty years ago, the roof was left in the same state that it was before.

WEYMOUTH.—The Great Western Railway propose to apply at once for Parliamentary powers for carrying out the important harbour and docks scheme at Weymouth, which has been under the consideration of the directors for some time. The Company propose to erect a harbour of their own on the Portland side of the Nothe, which now divides Weymouth Harbour from Portland Roads. To effect this a breakwater will be thrown out from the North Fort and another from the Admiralty Breakwater now in course of construction. This will make a harbour of some 75 acres in extent, and of a sufficient depth to receive vessels of any size at all hours of the tide. Docks and jetties will also be provided as the growth of the service may require. An important part of the scheme also is the construction of a new railway from a point at Ralipole, skirting Wyke and Westham, and passing along the foreshore to the new harbour. By this means the fast trains of the Company will be able to run without check to the quay side. Powers will also be asked for to construct a railway from the docks along the new Admiralty Breakwater, so that the Government vessels and warships may coal with the greatest ease.

WREXHAM.—The site at the corner of High Street and Church Street, which was previously occupied by premises known, from its connection some years back with the North and South Wales Bank, as the "Old Bank Buildings," has been taken over by Parr's Bank, Ltd. The site has a frontage of only nine yards to High Street and ten yards to Church Street. The whole of the ground floor, with the exception of the side entrance passage and staircase, is given up to the exclusive use of the bank, and consists of a room approximately 24ft. square and 12ft. 6in. high. The public space to which the vestibule opens is executed in mosaic, and consists of a ground-work of light mottled pattern, on which a conventional design is traced, surrounded by a boldly-treated border in subdued colours; the remainder of the floor is boarded. The manager's room has a fibrous plaster ceiling in two parts, separated by the beam which supports the division walls of upper floors; it is divided up by moulded ribs into geometrically arranged panels, the principal of which are enriched with conventional ornament. The walls are finished in Keene's cement, crowned by a deep ornamental frieze and enriched cornice in fibrous plaster. In order to devote as much space as possible to the banking room, the outer walls have been constructed of sufficient thickness only to ensure strength and stability, and the massive classic columnar type of Architecture, so frequently identified with banking premises, has been departed from, the exterior having been treated in a phase of English Renaissance, which, whilst lighter in character, is sufficiently indicative of the purposes to which the various portions of the building are devoted. The distinction between the banking room and the offices above is marked, not only by the contrast between the bolder character of the lower portion as compared with the lighter work of the upper floors, but by the scheme of colour treatment adopted in the masonry. The outer walls are faced with stone from the Abenbury quarries of the contractors, Messrs. Davies Bros. The ground floor is executed with the grey ashlar, with dressings of the pink stone, the upper portions being constructed entirely of the latter. The High Street and Church Street façades are similar in treatment, the design of one being the counterpart of the other, with the addition of a narrow bay containing the side entrance from the latter street. The ground floor is finished and the level of the first floor marked by a deep

frieze of curved section, on which the name of the bank is carved in relief, and by a moulded cornice. These are broken round the projections carrying the pilasters of the upper portion, below which are suspended the coats-of-arms of the various places in which the head and principal branches of the bank are situated. The two upper floors of offices are treated alike, the two bays being divided by projecting pilasters, which serve at the same time to mark the interior division walls, and are repeated at the angles of the building. The main windows also project, and are two light square-headed openings with splayed sill, moulded jambs, mullions, heads, and transoms, the upper portions being filled with small rectangular lead lights, and the lower with plate-glass sheets, one half of which are hung in wrought-iron casement frames to open. The whole of the structural work has been carried out by Messrs. Davies Bros. The carving on the façades is the work of Mr. F. G. Lloyd, Victoria Place, Manchester. The heating apparatus and lead lights to banking room have been executed by Messrs. A. Seward and Co., of Lancaster, and the ceilings and cornices, &c., by Thomas Cordingley and Sons, of Bradford. The fireplaces to banking room and to offices on first floor are supplied by the Teale Fireplace Co., of Leeds, and the gas fittings and ornamental ironwork by Messrs. Hardman, Powell, and Co., of Birmingham. Messrs. Waygood and Co., of Falmouth Road, London, supplied the lift, and Messrs. Chubb and Co. the armour-plated doors to strong room and plate store. The window panes to upper floors were manufactured by Messrs. R. L. Williams and Co., of Chester. The whole has been carried out from the plans and under the superintendence of Mr. J. H. Swainson.

THE PURIFICATION OF SEWAGE.

AT a recent meeting of the London Society of Arts, a paper was read by Dr. Samuel Rideal, on the "Purification of Sewage by Bacteria." He remarked that the success which attended the experiments at Exeter on the disposal of sewage by means of the septic tank process, made the present time a fitting one to review the whole problem of sewage disposal. The various methods based upon chemical precipitation and subsequent land treatment of the effluent had given results which had seldom been satisfactory economically, and which had often been disastrous from other causes to such an extent that many authorities were refraining from the erection of works on the old lines. The difficulties were usually due either to the injudicious and extravagant use of chemicals or to the unsuitability of the land acquired for the treatment of the effluent. Thirty years ago methods of upward filtration were suggested in the place of chemical precipitation, and the results obtained were so satisfactory that it was difficult to understand why chemical treatment was so universally adopted. In judging the results obtained by these newer processes of sewage purification, they were brought face to face with the problem as to what might be regarded as a satisfactory effluent. The standard fixed by the Rivers Pollution Commission was formulated on the ground that no river in the United Kingdom was long enough to secure the destruction of any sewage. Experiments had shown that this was not the case. Dr. Dupré had succeeded in arresting putrefaction of London sewage, by adding thirty-five times its volume of London tap-water. The agencies in this process were almost entirely bacterial. After partial nitrification in a filter, the action of another class of bacteria, which absolutely required a certain amount of organic carbon as food, converted the latter into carbonic acid and harmless gases, the oxygen required being taken from the air or from that dissolved in the water. After a number of careful experiments, he considered that an effluent which was in an active state of self-purification, if clear and nearly free from odour, might safely be discharged into a river of moderate volume.

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

ACME LEAD FLINT GLASS CHIMNEYS.

In a recent issue of the BUILDERS' JOURNAL there appeared the following enquiry, received from a correspondent: "Can you inform me through what merchants I can buy 'Acme' lead flint glass chimneys for incandescent lights. They are made in the United States of America, and the trade-mark etched on each chimney is 'Trade Mark—Acme—Lead Flint.' They are wrapped in pink printed paper." We stated in reply that the chimneys in question would shortly be obtainable from a certain London firm, who had informed us that they had just contracted an agency with the makers, and had had a consignment of the articles shipped to them. This reply provoked some correspondence, and after making full enquiries we learn that the makers of the Acme Flint Glass Chimneys are Messrs. Gill Brothers and Co., of the "Acme" Flint Glass Works, Stenbenville, Ohio, U.S.A. Messrs. Gill's representatives in this country are Messrs. S. Hoffnung and Co., whose office is at 102, Fore Street, E.C. The Acme Flint Glass Co., of 81, Newhall Street, Birmingham—who have also been in correspondence with us on this subject—hold the sole right of sale in Birmingham, the North of England and Ireland, by virtue of concessions from Messrs. Hoffnung and Co.; and we are desired to make this fact known, as our original statement to the effect that another London firm had contracted the agency might possibly prove detrimental to their interests. We have pleasure in carrying out the wishes of the Acme Flint Glass Co.; and we would also ascribe to the Acme flint glass chimney the merits it possesses. The chimneys are composed of the finest material—they are made of Acme lead-flint glass—and will withstand any heat. We have received a sample of the article, and can testify to the excellence of the workmanship and finish.

THE PRESERVATION OF TIMBER.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you please let me know of any book dealing on the preservation of timber by creosoting, and shewing drawings of a plant used for the purpose. Also the name of any maker of a creosoting plant.—Yours faithfully,

HUGH MILLER.

We do not know of any book dealing specially with the subject of creosoting or of any that contain illustrations of the requisite plant, but some information relative to the process is given in "Scott Burns' Carpentry," publisher, John Murdoch and Son, London, and Rivington's "Notes," Vol. III., "Materials." So far we have been unable to discover any manufacturer who makes a speciality of the plant, but Messrs. Easton, Anderson, and Goulden, of Erith, and 3, Whitehall Place, S.W., make pumping engines and suitable cylinders, and they would probably quote and advise.

THE COST OF ILLUMINANTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be glad if you can inform me what the relative cost of gas and electric light is, or how many Board of Trade units of electric light would go to 1000ft. of gas—the amount of light given being the same in either case.—Yours faithfully,

G. F. G.

The comparative cost of gas and electric lighting will depend upon the quality and cost of gas, and the cost of electricity. If the comparison refer to the "common" gas of the

Gas Light and Coke Company, London, which has a light-giving quality of 16-candle power (16 c.p.) per 5 cubic feet per hour, and cost 2s. 6d. per 1000 cubic feet; and to electricity, costing 7d. per Board of Trade Unit (B.T.U.), the ratio will be about 1 to 3 in favour of gas as the cheaper light, as will be seen from the following calculation:—

Gas—
5 cub. ft. per hr. yield 16-c.p. per hr.
1000 " " " 3200 " " " at a
cost of 2s. 6d.
Electricity—
'064 B.T.U. yield 16-c.p. per hr.
12'8 " " 3200 " " " at a cost
of 7d. per B.T.U. or 7s. 5½d.
Ratio:—2s. 6d. to 7s. 5½d.,
or 1 to 2'98.

As the cost of electricity varies from 8d. to 4d. per B.T.U., 7d. is rather high. If the "Cannel" gas of the Gas Light and Coke Company be taken into account, the ratio would be 5 per cent. higher in favour of gas. From the foregoing calculation it will be seen that 12'8 units of electricity are required to give the light of 1000 cubic feet of gas; also, that as 12'8 times the price of 1 B.T.U. is to that of 1000 cubic feet of gas, so will be the relative cost of the one to the other.

COMPOSITION OF BUILDING STONES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—As a regular subscriber to your publication I should esteem it a great favour if you would (through your enquiry department) kindly describe the composition of the following building stones: 1, Caen; 2, Bramley Fall; 3, Forest of Dean.—Yours faithfully,

H. P. R.

The first, i.e., Caen, is a Jurassic limestone, and is almost entirely composed of pure carbonate of lime, about 95 per cent.; the other constituents being carbonate of magnesia and alumina. This stone sometimes exhibits an oolitic structure and at others a compact one with small spathic scales. It is easily cut, is pale cream-yellow in colour, and weighs 120lb. per cubic foot. It is found in the lower Oolite, and encloses ammonites, belemnites, and other fossils corresponding to those of the Bath stone of England. The variety of this stone, called Calcaire Marble of Caen, is destitute of fossils, and exhibits other colours than those described, such as yellow coloured with rose, grey, and sometimes a lively red. The second, viz., Bramley Fall stone, is a coarse-grained sandstone, light ferruginous brown in colour, and is composed of quartz grains and decomposed felspar, with a little mica in a granular form, united together with argillaceous cement. Its ferruginous spots are disseminated. Some qualities of this stone contain an excess of potash-felspar, and the stone therefore weathers badly, in fact, from its composition, it is at all times unadvisable to use this stone in damp situations. The third—i.e., Forest of Dean—is a sandstone obtained from the coal measures. It is found in three beds, each of which is harder than the one above it, the bottom one being of very hard grit. The tints of the two top layers are usually grey, sometimes inclining to brown, the third being bluer in colour. The different colours are probably due to a great extent to the difference in the cementing material, the blue colour being due to the presence of bisulphide of iron, the reddish-brown to anhydrous peroxide of iron, and the greenish-grey to sandy particles of the mineral glauconite or to proto-silicate of lime. The analysis of the two sandstones is as follows:—

Composition.	Bramley Fall.	Forest of Dean.
Quartz grains } or Silica	per cent. 93	per cent. 96'40
Carbonate of lime	" "	" " 36
Argillaceous Cement... ..	" 3	" "
Iron alumina	" 2	" 1'30
Water and loss... ..	" "	" 1'94
Decomposed Felspar	" 2	" "

Correspondence.

NOT GUILTY?

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—One cannot but admire the zeal of your correspondent "Stonemason," in defending the worker against the assertions of "A London Architect" and "A London Builder," but I hardly think that he will get the support of any who have made the working man a study from a business point of view, because everything tends to prove that the inroads made into the liberty of men by trade unionism have not been to the benefit of the worker, but have fanned a flame of discontent that asserts itself in the lack of interest which the worker has for his work. I do not deny that "Stonemason's" forty years have been spent in honestly doing his duty, but such instances are rare, and a master cannot, as your correspondent suggests, give a workman his notice, when the law of supply and demand is, as at present, so much in favour of the workman. The charges made against the building fraternity are of such a character as to require considerably more proof than bare assertions. Such practices may be indulged in by those not worthy the name of business men, but this should not be sufficient ground for a sweeping charge against the vast majority of professional and business men, who, as a class, are vastly superior to those they employ as far as regards honesty as a principle. When "Stonemason" asserts that the subject under discussion is only a bogey, he makes a big mistake, which any employer of labour can prove by referring to his books, and as facts speak louder than illusionary trumpetings, it would be better for "Stonemason" to have something more substantial than mere mythical assertions to prove his contentions.—Yours truly,

SE DEFENDENDO.

York, December 13th.

SKIPTON COTTAGE HOSPITAL COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Now that the award has been made in the Skipton Cottage Hospital Competition I beg to put before you a few glaring inconsistencies, and to ask your opinion as to the fairness of the committee and the assessor. Condition 4 of the competition says: "No perspective view will be allowed." Yet an elaborately coloured perspective view was amongst the drawings of the successful competitor. Then the successful competitor sent in a set of amended drawings before the award was finally given, to the exclusion of other competitors. Then the conditions state that "preference will be given, other matters being equal, to plans showing the strictest economy in their design and the future management of the hospital; and the cost for sixteen beds, with the usual appurtenances, not to exceed £2500." I venture to think the selected plans neither economical in design nor for future management; as for the cost, that may safely be left open, as it will speak for itself in due course. Then a circular letter from the committee's secretary to the competing architects says:—"You will like to know that the plans were all examined and reported upon by an eminent firm of architects in London." The name is not disclosed, and I can scarcely think that a London architect of repute would lend his name to a selection, which in my opinion is very unjust. In justice to the selected architect, I must say his plans are creditable, but there can be no sense of right in either a committee or an assessing architect who can award the premium to plans in which the conditions are so flagrantly overlooked. I should be glad to hear the views of competitors or others interested.—Yours truly,

VERBATIM ET LITERATIM.

WORKING drawings are now in hand for the new subway, for which the County Council has obtained Parliamentary powers between Greenwich and the Isle of Dogs.

Under Discussion.

THE WINTER SESSION.

SOCIETY OF ENGINEERS.

The forty-fourth annual general meeting of the Society of Engineers was held a few days ago at 17, Victoria Street, Westminster, S.W., Mr. George Maxwell Lawford (President) in the chair. The following gentlemen were duly elected by ballot as the Council and officers for 1898, viz.:—as President, Mr. Wm. Worby Beaumont; as Vice-Presidents, Messrs. John Corry Fell, Henry O'Connor, and Charles Mason; as ordinary members of Council, Messrs. James Patten Barber, Joseph Bernays, George Burt, David Butler Butler, Percy Griffith, Richard St. George Moore, Nicholas James West, and Maurice Wilson; as hon. sec. and treasurer, Mr. Perry Fairfax Nursey; as hon. auditors, Messrs. Alfred Lass, F.C.A., and Samuel Wood, F.C.A.

EVOLUTION OF STYLE IN ARCHITECTURE.

At a meeting of the Edinburgh Architectural Association, Mr. Thomas Ross, the president, in the chair, Mr. Leslie Ower, president of the Dundee Institute of Architecture, read a paper on "The Evolution of Style in Architecture." There were, he stated, many influences at work in the development of the styles, such as climate, materials, habits of the people, political disturbance, and so on; and in modern days they had such influence as new materials, scientific inventions, facilities for travel and transport, and the like. One of the baneful influences of our commercial and city life on Architecture was smoke. It was not encouraging, to say the least of it, to see a fine piece of Architecture become in a year or two, sometimes almost before it was completed, so soot-begrimed that it lost much of its effect. Surely engineers and scientists were not yet prepared to admit that everything had been tried, and that the cure of this great evil was beyond them. The thought had been expressed by many, why was there no new style of Architecture invented? And they lamented the inartistic spirit of our time, which seemed to them to fall behind past ages in this respect. These people forgot that no architectural style had ever been invented, but had been the slow growth of centuries, and a little reflection would show that it was not to be expected, even in an age like ours, unsurpassed for progress in science and invention, that either new materials or inventions would quickly work such a radical change in building design and construction as to create anything that could be called by the honoured name of a style. The world moved slowly in such matters, and it might even be that, all unknown to ourselves, as it had always been to those who were the busy agents in producing it, a style might be developing under our hands and eyes which, in the estimation of following generations, would be fit to take rank alongside the great architectural styles of the world. —The lecture was illustrated by lantern views of ancient and modern buildings.

THE CHURCHES OF CYPRUS.

At a recent meeting of the Oxford Architectural and Historical Society, Mr. Myres read a paper upon "The Churches of Cyprus." The periods of the various styles, in the first place, were clearly defined, and the advance in Art ran pretty equally with that in South France. The first dated cathedral was 1291, but there are forts in the hills, upon heights inaccessible to those who cannot climb trees, and there are some late Byzantine castles. In the south of the island are two or three Lusignan forts and the remarkable tower of Colosse, of Early Gothic type, perhaps the work of the Templars. A distinguishing feature in almost all the styles was the chevron ornament, treated in many ways, and not, as in England, confined to Norman or Transitional. It occurs even in sixteenth and seventeenth Turkish buildings. The buttress did not, in Cyprus, take that four-sided plan so

customary with us; it is sometimes semi-hexagonal, sometimes semi-octagonal. Most of the ecclesiastical buildings are groined, and in early examples this is generally worked without projecting ribs. Wooden roofs are seldom seen; they are of concrete, and are very flat, being used as promenades. They are accessible by newelled staircases, and have but slight parapets. Gurgoyles and water spouts are conspicuous in some of the buildings. Such heavy roofs would be in danger of collapsing, but where the concrete mass is thickest they follow an old custom of placing in the midst tough vessels of earthenware, and their hollowness lightens the load upon the haunches. Triple apses are almost the rule, and the groining of these is frequently carried into the nave roof, for there is no structural chancel, the pattern (a simple rectangle) having come down from the Roman basilica. In some instances he noticed that the flying buttresses, requisite where so much and lofty vaulting is used, rest upon side walls, not upon projecting buttresses, as with us. One fine church was so full of granary fittings that the interior construction could not be understood. The cathedral of Famagusta and several other churches have two western towers, reminding us of Lichfield. The cathedral has its wide windows filled with Turkish lattice-work, neither beautiful nor pleasing, and its internal fittings have undergone a complete wreck. The efforts of the English to check the destruction of ancient structures has so far been moderately successful, but it will be some time before restorations or even befitting repairation can be attained.

The Vestry of St. Margaret and St. John, Westminster, has addressed a circular letter to the other London sanitary authorities stating that certain property occupied by Government departments in Westminster had been found to be in defective sanitary condition and dangerous to the public health, owing to such property not being subject to the provisions of the Public Health Act, 1891. They have already asked the Local Government Board and the Office of Works to provide access for sanitary officers to all barracks, post offices, and other Government institutions, and they ask for general support for this proposal.

MR. H. B. BOULNOIS, C.E., on behalf of the Local Government Board, has held an enquiry at Meltham into an application by the District Council to borrow £16,000 for works of sewerage and sewage disposal. The total estimated cost of the works, including the purchase of land, is £15,538. The outfall works will occupy eleven acres, and it is proposed that purification shall be secured by precipitation and filtration. Originally the works were designed so that trade effluents might be dealt with, but the District Council have since decided not to take in trade effluents, in view of difficulties anticipated from riparian owners, and also from the fact that the streams have to provide compensation water to the mill-owners on their banks.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—For the erection of school and residence, Inchmure, for the Banchory-Davenick School Board. Mr. R. G. Wilson, architect, 181A, Union-street, Aberdeen. Quantities by the architect.

Masonry.—Jas. Reid, Banchory Devonick, Aberdeen.
Carpenetry.—R. Thomson and Sons, Bon-treelush, Aberdeen.
Slating.—Geo. Currie, Aberdeen. £1,726 12 6
Plastering.—Alex. Ross, Aberdeen.
Plumbing.—J. F. Anderson, Aberdeen.
Painting.—D. McLennan, Cults, Aberdeen.

ASTLEY (Salop).—For the erection of small house, for Mr. James Wallace, Mr. J. R. Withers, architect, Shrewsbury.
G. H. Bickerton. £295
G. Bullock. 95 Tommy Bros., Wem* 811
T. Morris. 555 *Accepted.

CASTLEBAR (Ireland).—For the execution of water supply works, for the Governors of Castlebar District Lunatic Asylum, Mr. G. K. Dixon, O.E. Quantities by engineer.
James Galloway and Sons, Sligo. £200

CASTLE BROMWICH.—For the execution of sewerage works (2,800 yds.), for the Rural District Council. Mr. J. E. Wilcox, C.E., Union Chambers, Birmingham.
Curral & Lewis. £2,100 14 0 H. Holloway. £2,273 18 1
Jacob Biggs. 3,000 0 0 George Law. 2,200 0 0
J. White, jun. 2,000 0 0 J. C. Trueman. 2,075 0 0
T. Vale. 2,300 0 0 Henry Law, Ches-
John Mackay. 3,300 0 0 ter road* 1,787 0 0
*Accepted.

DEVONPORT.—For paving Granby-street and Herbert-place-lane, for the Rural District Council. Mr. J. F. Burns, Borough Surveyor, Municipal Offices, Devonport.

T. Shaddock. 2328 6 2
C. L. Duke, Plymouth (accepted). 251 4 3

T. Shaddock. 2414 17 7
C. L. Duke, Plymouth (accepted). 343 13 5

FRODSHAM.—For new warehouse and offices, Frods-ham, for Messrs. Kydd and Kydd, Limited, jam and pre-serve manufacturers. Mr. Samuel Davies, Runcorn and Frods-ham, architect.
John Little, Frods-ham (accepted). £1,436

FRODSHAM.—For new house, Frods-ham, for Mr. Thomas Lewis. Mr. Samuel Davies, Runcorn and Frods-ham, architect.
Thomas Davies and Sons, Frods-ham (accepted). £450

FRODSHAM.—For extensions to "Fir Grove," Frods-ham, for Mr. Reynolds. Mr. Samuel Davies, Runcorn and Frods-ham, architect.
R. and G. Gleave, Frods-ham (accepted). £325

FRODSHAM.—For stable buildings, Netherton, Frods-ham, for Mr. Thomas D. Timmins. Mr. Samuel Davies, Runcorn and Frods-ham, architect.
Thomas Davies and Sons (accepted). £325

GOSPORT.—For the erection of two houses, Parham-road for Mr. Thos. Hy. Smith. Mr. Harry A. F. Smith, architect and surveyor, Gosport.

J. W. M. Rapley. £795 O. M. Dash, Gosport* £669
A. Habens. 725 Lane and Son. 656
C. Jupe. 720 *Accepted.

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GOSPORT.—For the erection of two houses, Park-road, Mr. Harry A. F. Smith, architect and surveyor, Gosport.
 J. W. M. Rapley ... £175 | C. M. Dash ... £100
 A. Hals ... 11 | ... and Son ... 65
 C. J. L. ... 100 | ... Accepted.
 [All of Gosport.]
 GOSPORT.—For the restoration of the Anglesey Hotel, in Park-road, Gosport, Mr. Harry A. F. Smith, architect and surveyor, Gosport.
 J. W. M. Rapley ... £200 | C. M. Dash, Gosport ... £240
 C. J. L. ... 84 | ... Accepted.

GOSPORT.—For the erection of a row of ten houses, Park-road, Gosport, for Mr. J. G. Parham, Mr. Harry A. F. Smith, architect and surveyor, Gosport.
 J. W. M. Rapley ... £1,940 | C. J. L. and Son ... £1,700
 W. F. Johnson ... 1,940 | W. T. Dugan, Portsea ... 1,350
 C. M. Dash ... 1,889 | ... Accepted.
 GOSPORT.—For the restoration of the Anglesey Hotel, recently damaged by fire, Mr. Harry A. F. Smith, architect and surveyor, Gosport.
 Hy Jones ... £1,130 | Jno. Croad ... £1,919
 C. M. Dash ... 1,079 | C. J. L. and Son, Gosport ... 998
 ... Accepted.

KEIGHLEY.—For the erection of thirty-five houses off Fell-lane, for the Keighley Industrial Co-operative Society, Limited, Mr. Jno. Haggas, architect, North-street, Keighley.
 Masonry.—John Hird, jun., Ingrow, Keighley
 Slating.—Wm. Thornton, Bingley
 Plastering.—Forrest & Antrim, Goulbourne-street, Keighley
 Plumbing.—Purke and Lodge, Bridge-street, Keighley
 The Society employ their own men for joiners' and painters' work.

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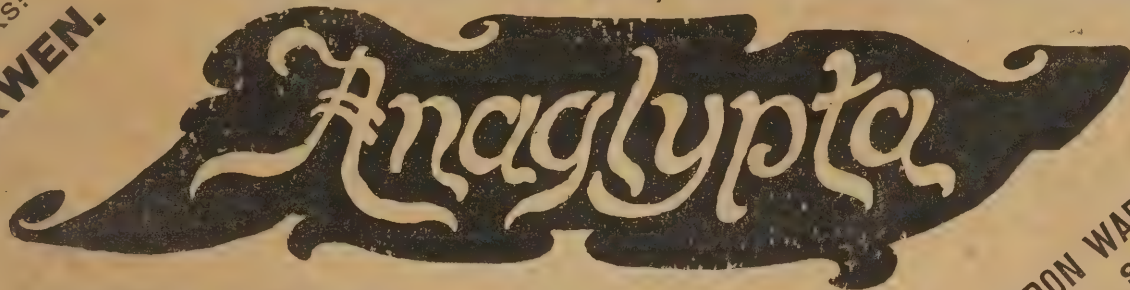
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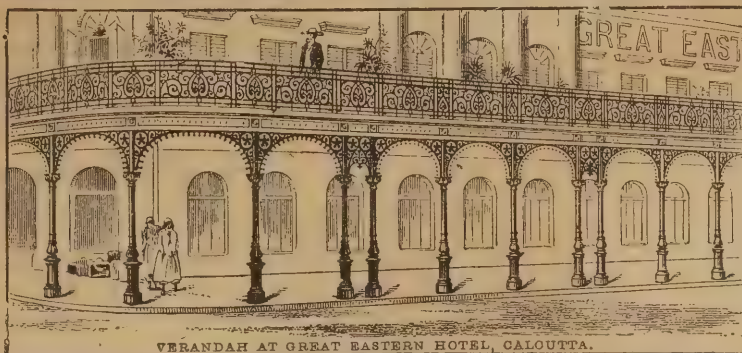
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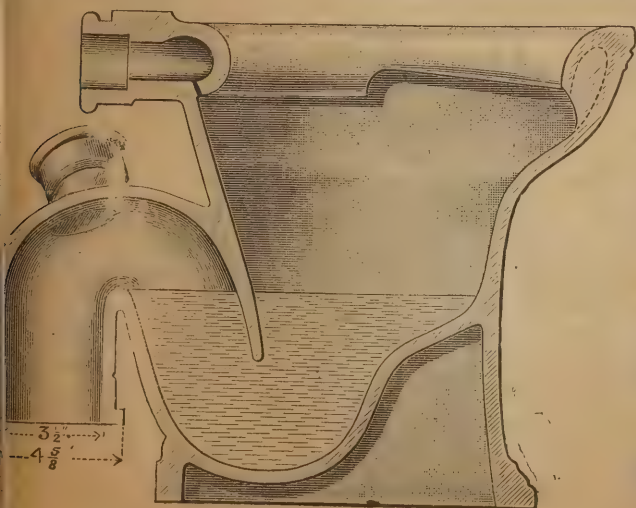


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KIRBY MUXLOE.—Accepted for the erection of six houses and outbuildings, Contract No. 1. Messrs. Miles and Beasley, architects and surveyors, Friar-lane, Leicester:—
 Urban Gurney, Tower-street, Leicester ... £1,200

LAUNCESTON.—For sewerage and sewage disposal works, for the Corporation. Mr. A. P. I. Cotterell, C.E., Lonsdale-chambers, Baldwin-street, Bristol:—
 Contract No. 1.
 J. Shadock ... £5,069 4 4 Stephens and Son £3,839 0 0
 Pethick Bros. ... 4,924 0 0 J. C. Trueman ... 3,663 0 0
 W. H. and Arthur ... 4,443 0 0 Wm. Nanhirell & Sons ... 3,563 4 0
 Thomas ... 4,443 0 0 Sons ... 3,563 4 0
 Mingo & Boone ... 4,121 0 0 Ephraim Sharland, Launceston ... 2,990 10 0
 J. C. Lang ... 3,977 0 0
 J. Fisher ... 3,965 6 3
 [Engineer's estimate, £3,658.]

Contract No. 2.
 Pethick Bros. ... £680 0 0 R. Oliver ... £309 0 0
 Mingo and Boone ... 555 0 0 W. L. Doidge ... 369 0 0
 J. Fisher ... 497 0 0 E. Sharland ... 359 0 0

LISCARD.—New church, Liscard, Cheshire. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 W. Farrell and Son, Runcorn (accepted) ... £1,250

LISCARD.—New house, Liscard, Cheshire. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 W. Farrell and Son, Runcorn (accepted) ... £1,450

LISCARD.—Boundary walls, Liscard, Cheshire. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 W. Farrell and Son, Runcorn (accepted) ... £180

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LONDON.—For the erection of a detached house, Woodford-road, Snarebrook, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, E.C.:—
 H. W. Tavener ... £2,070 C. S. Foster ... £1,884
 W. Mundy ... 1,950 J. Jolliffe (accepted) ... 1,780

LONDON.—For erecting new general offices for the Metropolitan District Railway Company, at the St. James's Park Station, Westminster. Mr. Henry L. Florence, architect. Quantities by Mr. James Francis Bull:—
 Colls and Sons ... £18,569 Kilby and Gayford ... £15,436
 John Mowlem & Co. ... 18,000 W. Cubitt and Co.* ... 15,416
 Ashby and Horner ... 15,788 *Accepted.

LONDON.—For pulling down and rebuilding "The Royal Oak" Bromley-by-Bow, E. Messrs. Foulsham and Herbert Riches, joint architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—
 P. Hart ... £1,330 T. Osborn and Sons ... £1,283
 S. Salt ... 1,343 J. Edmunds ... 1,280
 A. J. Sheffield ... 1,290 J. T. Robey (accepted) ... 1,250

LONDON.—For additional paper, roller and block stores to Paperstaining Works, Chiswick, W. Mr. Edmund M. Bowyer, architect and surveyor, Bloomsbury Mansion Hart-street, W.C. Quantities by Mr. John Windsor:—
 Mr. Wheatley, Chiswick ... £174 12 8

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RUNCORN.—For alterations to premises, Greenway-road, Runcorn, for Mr. W. Collier. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 W. Farrell and Son, Runcorn (accepted) ... £200

RUNCORN.—Alterations and repairs to premises, Halton-road, Runcorn, for the Wigan Coal and Iron Co., Limited. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 W. Farrell and Son, Runcorn (accepted) ... £140

RUNCORN.—Alterations to Shop, Greenway-road, Runcorn, for Mrs. Waterworth. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 Billington and Royle (accepted) ... £60

RUNCORN.—New theatre, Lowlands-roads, Runcorn. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 W. Farrell and Son, Runcorn (accepted for first contract only) ... £1,900

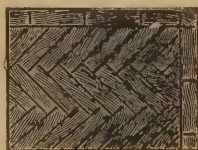
RUNCORN.—For enlargement of board-room, &c., at the Workhouse, Dutton, for the Runcorn Board of Guardians. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 Thomas Davies and Sons, Frodsham (accepted) ... £425

RUNCORN.—For alterations and repairs to Bank House, Runcorn, for Parr's Bank, Limited. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 Messrs. W. Farrell and Son, Runcorn (accepted) ... £340

RUNCORN.—For alterations to Grove House, Runcorn, for Dr. MacLennan. Mr. Samuel Davies, Runcorn and Frodsham, architect:—
 W. Farrell and Son, Runcorn (accepted) ... £600

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BRECKENFELT.—For additions, &c., to house West View, for Mr. M. James Marshall, architect, 2, 1/2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762,

Surveying and Sanitary SUPPLEMENT.

DECEMBER 29TH, 1897.

Practical Carpentry and Joinery.*

BY GEO. ELLIS.

(Continued from page ii.)

FLOORS in buildings are composed of the "naked flooring," a skeleton timber, or iron framework, used to support the covering, and the covering itself, termed "the floor." The naked floor consists of joists, binders, girders, and wall-plates, used separately or together, according to the size of the space to be covered. These are all of unwrought timber, in marked sizes, clean from the saw, and should be dry, free from sap and large knots; straight and regular shape, although desirable, is not essential to the safety of the construction. A good floor should be free from vibrations, rigid, exhibit no thrust on the supporting walls, except in a downward direction, and it may usefully act as a tie to thin walls. To that end it is usual, in dwelling houses, to run the joists from back to front, these being the walls that require the most support. When, however, this is not necessary, it will be found best to run them in the direction of least span. When the floor consists of a series of joists, bridging the void from wall to wall, or partition, without intermediate support, it is known as a single floor (see Fig. 48). This kind may be used for spans up to 18ft.; and if not required to carry ceilings with them, up to 14ft. It is not advisable to use them for greater spans than these, as to make them sufficiently strong joists of great depth would be required, and it is found more economical in space and material to use binders. Thin deep joists make stiffer floors than thick shallow ones of the same sectional area; 1½in. is, however, the thinnest that should be used, or the floor brads will cause them to split. The necessary depth can be found by dividing the span in feet by two—adding two, and calling it inches; for instance, span 12ft. $12 \div 2 = 6 + 2 = 8$. The thickness can be ascertained by calling the span in feet, inches,

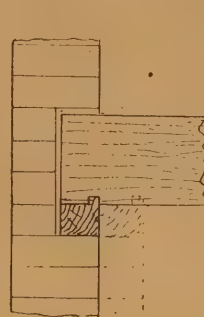


FIG. 51. WALL-PLATE BUILT-IN.

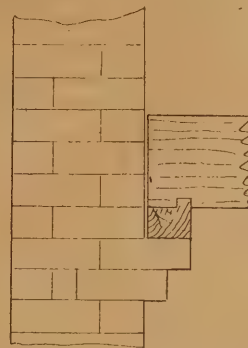


FIG. 52. PLATE ON BRICK CORBEL.

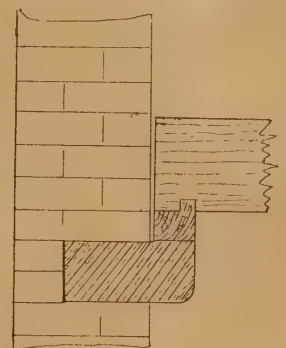


FIG. 53. PLATE ON STONE CORBEL.

and dividing by 5; the quotient will give a safe thickness in inches, add ½in. for ceilings. About every 5ft. of span the joists should be crossed with a row of herring-bone strutting, as shown in Fig. 48. This adds greatly to the strength and stiffness of the floor, and also distributes the load. The joists at the end of each row should be packed out from the walls, and in case of floors likely to receive sudden shocks, iron bolts should be passed through two or three of the joists next the wall, and tightened up with nuts, thus forming them into a kind of horizontal truss to absorb the concussion. There are several methods employed to fix the ends of the joists, each with its especial advantages and faults (see Figs. 51-56). The commonest is probably the worst, that of building it into the wall, as the dampness frequently sets up dry rot, and unless a template is used, there is no distribution of the weight. A wall-plate built in the thickness of the wall (as in Fig. 51) is open to the objection that, in the case of fire, its destruction might cause the collapse of the wall; it is also liable to dry rot. Placing the plate on a set-off, or on piers as indicated by the dotted lines, is an improvement, but reduces the size of the room below. The use of a corbelling course (Fig. 52) requires careful supervision to prevent the introduction of defective bricks, which might prove highly

dangerous. The stone corbel (Fig. 53) built in the wall every few feet is stronger than the former, but is liable to fail in case of fire, as intense heat causes stone to fracture. Wrought-iron brackets (Fig. 54) built into the wall meet the latter difficulty, but do not sufficiently distribute the weight of large floors. A good method is shown in Fig. 55. Here a wrought-iron bar is laid on the brickwork, and the ends of the joists rest upon it. This does not, however, provide any tie, and a method adopted by the writer has met with some favour. (See Fig. 56.) A T-iron bar, 2in. by ½in. by ½in., is bedded on the wall in cement, first painting it with red lead, and the joists notched over the projecting member. Ground floor joists should rest on offsets or piers, and dwarf or "sleeper" walls be built at intervals to support them. The joists can be made much smaller than for upper floors. The wall-plates should be of oak, creosoted to protect them from the dry rot. Fender walls should be built around the fireplaces to carry wall-plates in place of trimmers. In the upper floors, all the fireplaces and other openings require trimming round, i.e., the ends of the joists kept short to provide the opening are tusk-tenoned into a thick cross-joist, called a trimmer, framed in a similar manner between two of the bridging joists, which are then known as trimming joists. All the joists mortised into should be made ½in. thicker for each joist carried, or by rule-of-thumb 1in. thicker than the common or bridging joists. The double floor (Fig. 50), consisting of single joists and binders, is used for spans too great to be bridged by a single floor. The binders are large beams laid across the shorter span every 8ft. or 10ft., their ends resting on stone templates built in the wall, in a little recess or pocket, for ventilation. The bridging joists can be notched or coggied over the binders, to reduce the height (as shown in Fig. 57) when notched; fillets are nailed on each side of the binders to take the bearing of the lower part of the joists, and a similar method is adopted for fixing the ceiling joists. Coggied, which may

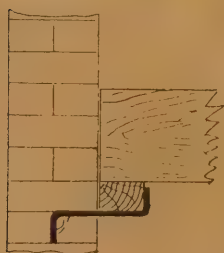


FIG. 54. WALL-PLATE ON BRACKET.

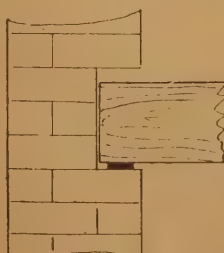


FIG. 55. JOIST ON IRON BAR.

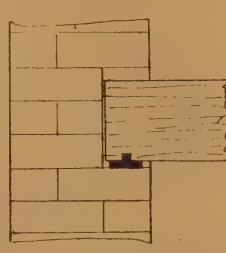


FIG. 56. JOINT ON T-IRON BAR.

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be used for the upper edge of the binder without much detriment, as it is in compression, should never be permitted for the ceil-

top to form an intermediate floor joist. The binders are framed into the girder with stub tusk tenons drawbore pinned. The mortice should be

draw the shoulder up. The haunching above the tenon should taper, as shown, to avoid weakening the girder, its sole use being to prevent the binder twisting. Binders must not be placed in line, the bays varying about 1ft. to avoid having a mortice on each side of the girder in one place. In some instances this would make one of the case bays too great a span for the bridging joists, and cast-iron stirrup shoes (Fig. 59) are used to carry the ends of the binders, but the danger of their use is that in case of fire they would snap and drop their load.

(To be continued.)

A NEW reception house, erected by the vestry of St. George-the-Martyr, Southwark, has recently been opened. The building is capable of accommodating four families. It is situated in King James Street, and its erection has cost £2000.

THE new sewage purification works of the burgh of Loanhead have been opened. At the opening ceremony, Mr. A. W. Belfrage, C.A., Edinburgh, gave an explanation of the undertaking. He stated that formerly the drainage from Loanhead flowed into the May and Wading burns, but objections were raised, and proceedings threatened by the riparian proprietors, which necessitated the Commissioners taking steps to remedy the matter complained of. They consulted his firm, who advised them to adopt the international system of purification by precipitation and filtration, which has been carried out. Owing to the situation of Loanhead, it was necessary to have two different outlets, and this necessitated two sets of tanks, &c., in fact, two systems, each complete in itself. New pipe sewers have been laid throughout the whole of the burgh, according to the most approved method, the old sewers being retained for road and surface water, which is not taken into the new system, but is discharged into the burns, as formerly. The sewage from the southern and larger section of the burgh is conveyed to the precipitation tanks, &c., constructed in Haverall Wood.

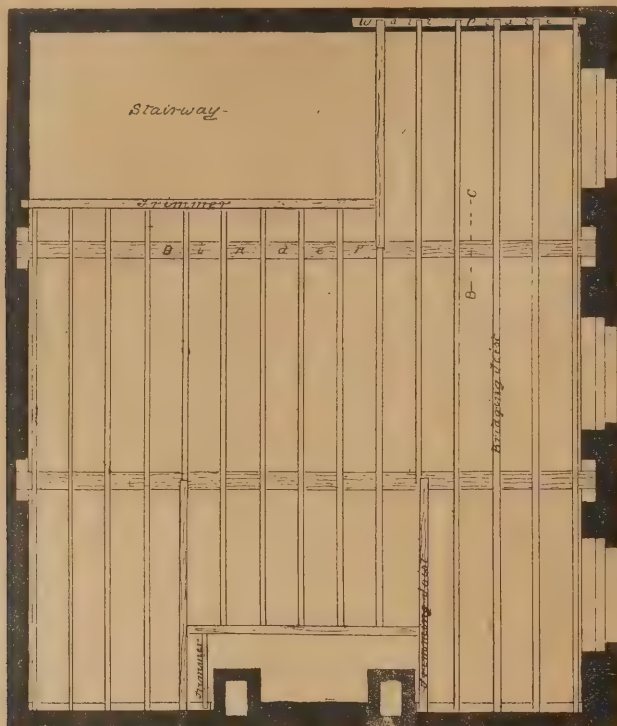


FIG. 50. A DOUBLE FLOOR (PLAN).

ing joists, as the lower edge of the binder being in tension would be seriously weakened by having its fibres cut. The chase mortice shown in the sketch (Fig. 57) is open to the same objection, though to a lesser extent. As most of the weight of the floor is collected on the binders, their ends should not be placed over openings, or, where this is found unavoidable, a strong lintel or girder should be thrown across to receive them, and carry the strain to the piers. Binders are sometimes wrought on three sides, and moulded on the lower edge, the ceiling being fixed direct to the bridging joists, or every fifth one is left 1in. deeper, and the ceiling joists notched to these. This latter method is useful to gain height and intercept sound. Another method of preventing the passage of sound is by pugging the floor. This consists in laying rough boards loosely between the joists on fillets nailed on each side, and covering them, to a depth of 3in. or 4in., with coke breeze cement or slag wool. Air spaces should be left above and below, and 3in. holes bored through the top part of the joists for ventilation, otherwise dry rot will be set up in the timbers. To ascertain the size of binders for any span, assume 5in. wide and 8in. deep as a standard for a 10ft. span, then for each 2ft. of span in addition add 1in. to depth and 3in. to thickness.

When the span exceeds 22ft., the depth of the binders to ensure stiffness becomes too great, and a third member is introduced into the construction, the girder; forming what is known as a framed floor. Girders are large beams arranged about 10ft. apart in the direction of the smaller dimension of the room, with the binders framed between them, and carrying the bridging and ceiling joists arranged in the same manner as in double floors. These floors, although employing more timber, are not comparatively so strong as double floors, in consequence of the number of joints necessary for their construction—which are all points of weakness—and the concentration of the total weight at two or three points in place of its equal distribution over the walls. Fig 58 is a section of a portion of a framed floor taken through one of the binders, and showing a flitched girder, with joists notched and coggled. Two strips of brandering are nailed along the under side of the girder to level down to the ceiling joists, and form a continuous fixing for the laths. A furring piece is also spiked to the

made in or above the neutral axis of the beam, and the thickness of the tenon should be one-sixth the depth of the binder; the tusk should be half the width of the shoulder and 1in. deep. This must fit accurately, as it takes most of the weight, the tenon being used to

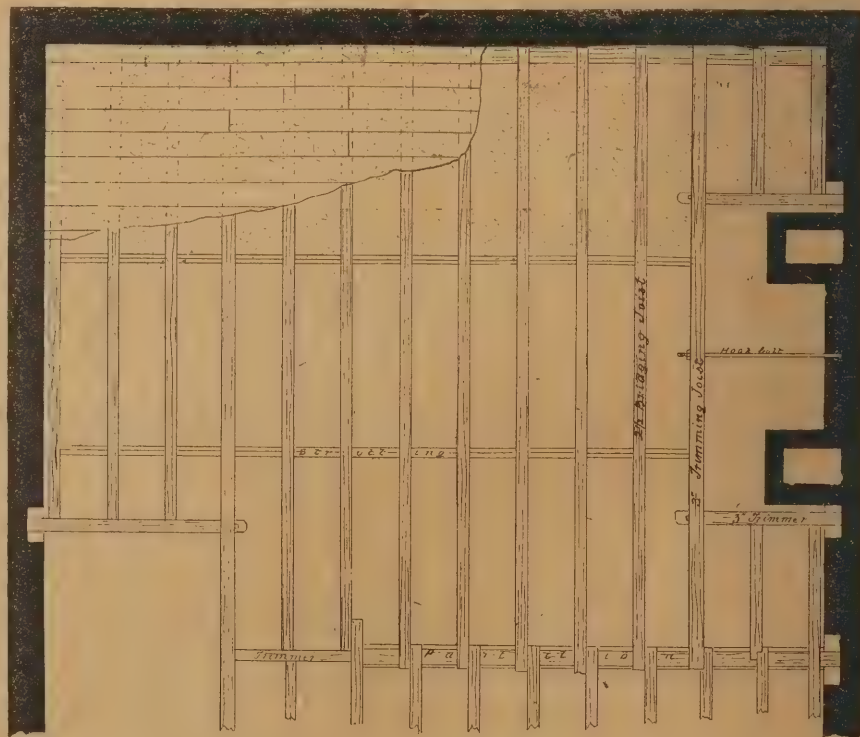


FIG. 48. A SINGLE FLOOR (PLAN).



FIG. 49. A SINGLE FLOOR. SECTION A-B.

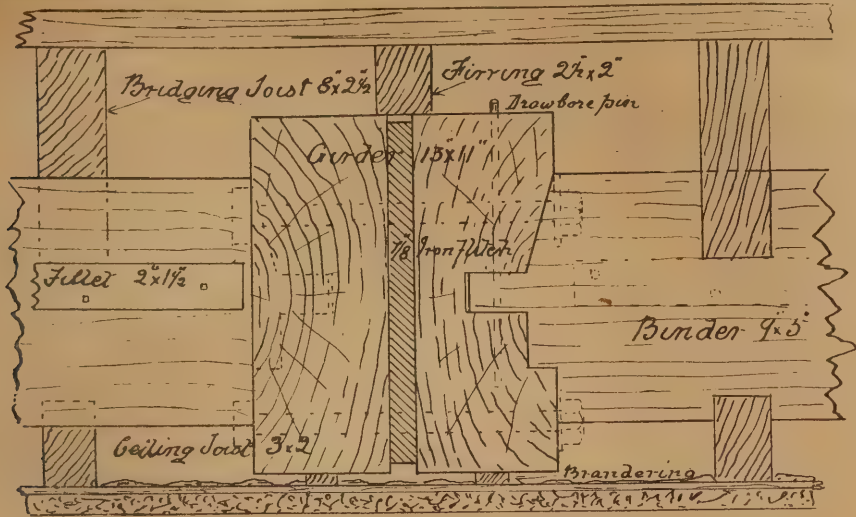


FIG. 58. SECTION OF A FRAMED FLOOR.

THE MANCHESTER CULVERT SCHEME.

IT is stated that the Ship Canal Company objects to the culvert for the conveyance of the effluent from the Davyhulme sewage works terminating at Randles sluices. The Company, it is understood, desires that arrangements shall be made whereby the effluent may, if deemed necessary—in times of drought, for example—be turned into the canal at a point between Woolston Weir and Walton lock. The line of the proposed culvert, leaving Davyhulme on the southern bank of the canal, runs in a course more or less parallel to a point immediately below the Stag Inn swing bridge, some two miles beyond the Latchford locks. At this point it is proposed to syphon under the canal, making an outlet into the River Mersey a little below Walton lock, and between that point and the new road constructed by the Canal Company across Arpley Meadows. From this point the culvert proceeds along the northern side of the canal for a length of about three miles to the main outfall at Randles sluices. It is thought, says the Manchester Guardian, that the proposal for a joint scheme for Manchester and Salford, instead of relieving, would add to the difficulties of the situation. The Salford effluent entering the canal above Barton locks, notwithstanding its nastiness, has, from a navigation point of view, a distinct value for lockage purposes. On the other hand, the Manchester

EFFLUENT ENTERING THE CANAL below Barton locks is of slight local value. It assumes importance at a lower point. Its abstraction from the volume flowing through Warrington would be serious. It would add to the labour of dredging by diminishing the scour, and in dry seasons would probably interfere with navigation in the Warrington section of the Mersey. The plan proposed by Alderman Southern last year, and adopted by the Council, but rejected at the meeting of

ratepayers, was to shorten the culvert considerably and place its outfall at a point above Warrington. This course would obviate some of the difficulties involved in the present scheme; but there is one objection to this plan which has hitherto been regarded as insuperable—viz., that it would still leave the outfall within the jurisdiction of the Mersey and Irwell Joint Committee. Possibly, if the culvert scheme is finally adopted, a solution may be found by making the proposed outlet at Walton the terminal outfall. It would save the cost of three miles of culvert, and it would avoid the dangers involved in placing the outfall at Randles sluices.

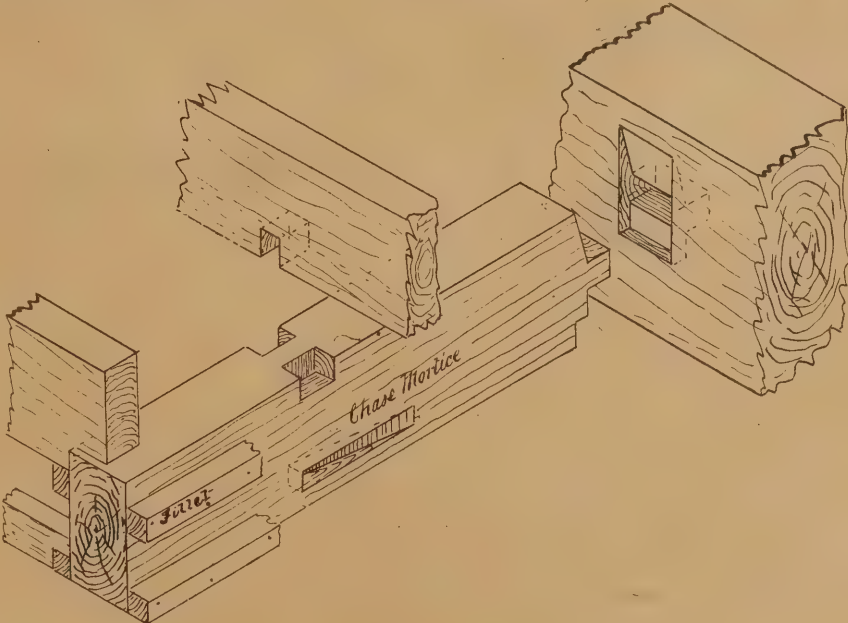


FIG. 57. JOINTS IN NAKED FLOORING. NOTCHING, COGGING, CHASE MORTICE, TUSK TENON.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Jan. 1	Abbeystead, Ireland—Erection of Residence	Co-operative Dairy Society Limited	Manager, Creamery Offices, Abbeystead.
" 1	Moybane, Ireland—Erection of Class-room	Corporation	E. R. Crook, Moybane, Letterbreen, Enniskillen.
" 1	Copenhagen—Repairing Cemented Museum Walls	County Council	F. Meldahl, Offices, Copenhagen.
" 1	Glentanet-isa, Wales—Bridge Abutments, &c.	County Council	R. L. Williams, County Surveyor, Denbigh.
" 1	Bodmin—Repairs to Police Headquarters	County Council	Police Station, Bodmin.
" 1	Goathland, near Whitby—Erection of Villa Residence	County Council	E. H. Smales, 5, Flowergate, Whitby.
" 1	London, S.E.—Repairs to Timber Wharf	County Council	R. A. Carr, 1, West Pier, London Docks, S.E.
" 1	Millbrook, nr. Devonport—Erection of Police Station, &c.	Cornwall Standing Joint Committee	H. J. Snell, 13, Courtenay-street, Plymouth.
" 2	Muret, France—Erection of Three Public Fountains	Gas Committee	Municipal Authorities, Muret (Dept. Haute Garonne).
" 3	Darwen, Lancs.—Erection of Boiler-house, &c.	Gas Committee	Gas Engineer, Charles-street, Darwen, Lancs.
" 3	Kingussie, Scotland—Erection of Villa	Gas Committee	A. Mackenzie, Architect, Kingussie.
" 3	Larne, Ireland—Construction of Urinal	Town Commissioners	W. G. Younge, Town Clerk, Larne.
" 3	Netherton, near Huddersfield—Seven Dwelling-houses	Co-operative Society, Ltd.	J. Berry, 9, Queen-street, Huddersfield.
" 4	Salisbury—Erection of Engine Shed, &c.	Great Western Railway Co.	Station Master, Great Western Railway Station, Salisbury.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Jan. 4	Brighton—Alteration to School	School Board	T. Simpson and Son, 16, Ship-street, Brighton.
" 4	Huddersfield—Extension of Electric Supply Station	Corporation	Borough Electric Engineer, St. Andrew's-road, Huddersfield.
" 4	Kidlington, Oxon.—Erection of Two Cottages	Great Western Railway Co.	Station Master, Great Western Railway Station, Oxford.
" 5	Walmere—Erection of Public Convenience, &c.	Urban District Council	J. E. Turner, 2, Cornwall-road, Walmere.
" 5	Builth Wells, Breconshire—Intermediate Schools	Governors	T. Smith, Architect, Market Hall-buildings, Builth Wells.
" 5	Brentford, Essex—Alterations to Mess-room	Guardians	W. A. Finch, 76, Finsbury-pavement, E.C.
" 6	Southbourne—Additions to Schools, &c.	Westbourne School Board	N. C. H. Nisbett, 62, High-street, Winchester.
" 6	Salford—Supply of Stone for Cemetery Headstones		Borough Engineer, Town Hall, Salford.
" 8	Shoeburyness—Erection of Hall	Committee for Victoria Hall	W. Cox, Churchwarden, High-street, Shoeburyness.
" 9	Kirkbride, Cumberland—Erection of Houses		E. Hill, Grocer, Kirkbride, Cumberland.
" 10	Bedford—Offices and Storerooms		Engineer, Electricity Works, Bedford.
" 10	Lyndhurst—Stables, Billiard-room, Greenhouse, &c.	Commissioners of Woods, Forests, &c.	Hon. G. Lascelles, Queen's House, Lyndhurst, Hants.
" 11	Radcliffe, Lancs.—Erection of Buildings	Urban District Council	Engineer, Council Offices, Radcliffe.
" 13	Lewisham—Erection of Buildings	Guardians of St. Olave's Union	A. H. Newman, 31, Tooley-street, London Bridge, S.E.
" 13	Burley-in-Wharfedale, Yorks.—National School		E. C. Brooke, 4, Huddersfield-road, Brighouse.
" 13	Billerica, Essex—Erection of Infirmary, &c.	Guardians	A. T. G. Woods, Architect, New-road, Brentwood, Essex.
" 14	Kingstown, Ireland—Construction of Municipal Offices	Commissioners	J. Donnelly, Town Clerk, Town Hall, Kingstown.
" 21	Epsom, Surrey—Temporary Asylum Structures	London County Council	R. W. Partridge, 21, Whitehall-place, S.W.
" 25	Llanwrst, Wales—Erection of School		H. Teather, Architect, Andrew's-bldgs., Queen-st., Cardiff.
Feb. 1	Southampton—Erection of Hospital	Town Council	Greenway and Smith, 21, Queen Anne's-gate, Westminster
No date.	Beamish—Building Public-house		T. C. Nicholson, Architect, Blaydon-on-Tyne.
"	Belfast—Completion of Five Houses, &c.		H. T. Fulton, 91, Donegal-street, Belfast.
"	Bradford—Erection of Stands	Cycle Exhibition	Albert House, Unicorn-passage, Bradford, Yorks.
"	Cardiff—Erection of Church, &c.	Bible Christian Methodist Church	Veall and Sant, 6, Arcade-chambers, High-street, Cardiff.
"	Crawcrook, nr. Wylam-on-Tyne—Erection of Stores, &c.	Co-operative Society	W. Dixon, Architect, St. John-street, Newcastle-on-Tyne.
"	Halton, Yorks.—Plastering, Slatting, &c.		C. W. Lambert, 39, Whingate, Armley.
"	Harrogate—Alterations, &c., to Hotel		T. B. Wilson, 12, East-parade, Leeds.
"	Hunslet, Leeds—Erection of Factory	W. Wilson and Sons	Ambler and Bowman, 9, Park-place, Leeds.
"	Leeds—Alterations, &c., to Hotel	Brown, Carson and Company	A. Neill, 18, Cookridge-street, Leeds.
"	Leeds—Foundations, &c., of Assurance Buildings		A. Neill, 18, Cookridge-street, Leeds.
"	London—Erection of Buildings		Alpha, c/o J. J. Chapman, 13, Clifford's Inn, London, E.C.
"	Nottingham—School Additions	School Board	A. N. Bromley, Prudential-bldgs., Queen-st., Nottingham.
"	Ramsgate—Altering House to Shop, &c.		— Buckhouse, 15, Rising-street, Ramsgate.
ENGINEERING—			
Jan. 1	Lisbon—Construction of Canals		Department of Public Works, Lisbon, Portugal.
" 3	London, N.W.—Two Vans for Removal of House Refuse	St. Pancras Vestry	C. H. F. Barrett, Clerk, Vestry Hall, Pancras-road, N.W.
" 3	Valenciennes, France—Covering River		Municipal Authorities (Dept. de Nord), Valenciennes.
" 4	Sirhowy Valley, Monmouth—Extension of Tram Road	Great Western Railway Co.	The Engineer, Newport Station, Monmouth.
" 5	Littlehampton—Storm-water Works	Urban District Council	H. Howard, Town Offices, Littlehampton.
" 6	Carrickfergus, Ireland—Water Supply	Municipal Commissioners	J. Boyd, Town Clerk, Carrickfergus.
" 6	Southend-on-Sea—Repairing Loading Pier	Corporation	A. Fidler, Borough Surveyor, Clarence-road, Southend.
" 6	Southend-on-Sea—Re-roofing Underground Conveniences	Corporation	A. Fidler, Borough Surveyor, Clarence-road, Southend.
" 7	Dunmanway—Construction of Reservoirs	Guardians	F. J. Crowley, Clerk to Union, Dunmanway.
" 8	Ballyshannon, Ireland—Waterworks	Guardians	J. Perry, County Surveyor, Galway.
" 9	Athens—Dock Extensions		Chancery of the Monarchie Attaque and Beotie, Athens.
" 10	Bootle, Lancs.—Electric Lighting Works	Corporation	J. H. Farmer, Town Clerk, Town Hall, Bootle.
" 10	Bedford—Supply of Electric Lighting Plant	Electric Light Committee	T. S. Porter, Town Clerk, Town Hall, Bedford.
" 11	Northallerton—Iron Bridge	Rural District Council	W. Fowler, Clerk, Council Offices, Northallerton.
" 14	Klipplaat, Cape of Good Hope—Railway		Agent-General for Cape of Good Hope, 112, Victoria-st., S.W.
" 14	Bordeaux, France—Ship		The Prefect of the Dept., Givonde, Bordeaux.
" 18	Gloucester—Electricity Works	Electricity Supply Committee	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 19	Kirkcaldy—Construction of Reservoirs, Filters, &c.	Waterworks Commissioners	W. D. Sang, C.E., Kirkcaldy.
" 20	Terragona, Spain—Construction of Telephone System		Commercial Department, Foreign Office.
Feb. 1	Dover—Engines	Town Council	H. E. Stilgrove, Borough Engineer, Town Hall, Dover.
" 1	Birkenhead—Ferry Steamers	Corporation	Ferry Manager, Woodside, Birkenhead.
" 28	Guipuzcoa—Plans and Tender for Electric Tramway	Provisional Board	Commercial Department, Foreign Office, London.
" 28	Pernambuco—Port Works	Government	Brazilian Embassy, London.
No date.	Whickham, Durham—Heating Church		The Churchwarden, Whickham.
IRON AND STEEL—			
Jan. 1	London, W.—Various Stores	St. George's, Hanover-square, Vestry	G. Livingstone, Surveyor, Parish Offices, 1, Pimlico-rd., W.
" 3	Dublin—Supply of Stores, &c.	United Tramways Company	Company's Office, 9, Upper Sackville-street, Dublin.
" 3	Shanklin—Cast-iron Socket Pipes	Urban District Council	F. Newman and Cocks, 5, St. Thomas-street, Ryde.
" 3	Birmingham—Supply of Cast-iron Pipes, &c.	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 4	London, E.C.—Steel Tyres	Bengal and North-Western Ry. Co. Ltd.	E. L. Marryat, 237, Gresham House, Old Broad-street, E.C.
" 5	Richmond, Surrey—Gates and Fencing	Town Council	Borough Surveyor, Town Hall, Richmond.
ROADS—			
Jan. 1	Downpatrick—Road Works		R. Gordon, County Court House, Downpatrick.
" 1	London, W.—Supply of Granite, &c.	St. George's, Hanover-square, Vestry	P. Livingstone, Surveyor, 1, Pimlico-road, S.W.
" 1	Inverness—Laying Carriageway of Suspension Bridge		J. A. Mackenzie, Surveyor, Inverness.
" 3	New Malden—Forming Roads	The Maldens & Coombe District Council	T. V. H. Davison, New Malden.
" 3	Frimley—Recreation Ground Works	Urban District Council	The Surveyor, High-street, Frimley.
" 3	Ilornsey—Paving, Levelling, &c., Roads	Urban District Council	E. J. Lovegrove, Offices, Southwood-lane, Highgate, N.
" 4	Isleworth—Road Works	Urban District Council	W. A. Davies, Surveyor, Town Hall, Hounslow.
" 5	Birmingham—Limestone Paving	Public Works Committee	City Surveyor, Council House, Birmingham.
" 5	Norwich—Road Materials	Corporation	A. E. Collins, Borough Engineer, Guildhall, Norwich.
" 12	Chatham, Portsmouth, & Devonport—Supply of Teams	Admiralty	Director of Navy Contracts, Admiralty, Whitehall, S.W.
" 13	Southend-on-Sea—Tar Paving	Southend-on-Sea School Board	W. V. Hobbs, 57, High-street, Southend-on-Sea.
No date.	Berwick—Stones	Rural District Council	J. Short, Surveyor, Ord Cottage, Berwick.
SANITARY—			
Jan. 1	Fenstanton—Construction of Sewer	St. Ives Rural District Council	G. D. Day, Clerk, The Broadway, St. Ives.
" 1	Wolverhampton—Construction of Pipe Sewers, &c.	Sewerage Committee	J. W. Bradley, Boro' Surveyor, Town Hall, Wolverhampton.
" 3	Bridlington—Drainage of Workhouse	Guardians	S. Dyer, Architect, Quay-road, Bridlington.
" 4	Southend-on-Sea—Drainage Works	Corporation	A. Fidler, Borough Surveyor, Southend.
" 5	Harrington, Cumberland—Sewer Pipes	Urban District Council	J. Bowly, Clerk, Union Hall, Whitehaven.
" 6	Jarrow—Scavenging	Corporation	J. Petree, Borough Surveyor, Jarrow.
" 8	Troon, Scotland—Extension of Sewer	Commissioners	R. Young, Clerk, Troon.
" 15	Ballachulish, Oban, Scotland—Drainage Works	Lorn District Committee	K. Macrae, Surveyor, Oban.
" 25	Lisbon—Sewerage and Drainage Works	Secretary of State	Commercial Department, Lisbon.
TIMBER—			
Jan. 3	Valmaseda, Spain—Sleepers, Four Locomotives, &c.		Municipal Authorities, Valmaseda, Spain.
" 5	Colchester—Wooden Boxes	War Department, Colchester Stores	Assist. Adj.-General, Dist. Headquarters Office, Colchester.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan. 8	Belper—Water Supply Scheme	£15 15s., £5 5s.	Rural District Council.
" 13	Antrim—Plans for Dispensary		Guardians.
" 30	Carlton, Victoria—Designs for Children's Hospital	£100, £50, £25	J. Nicholson, Hon. Sec., Pelham-street, Carlton, Australia.
Feb. 7	Leicester—Designs and Tenders for Motor Refuse Carts		Sanitary Committee.
" 15	Wolverhampton—Designs and Tenders for Motor Vans for Street Scavenging		Public Works Committee, Wgverhampton.
Mar. 14	Port Elizabeth, S. Africa—Designs for Library Building	£105, £52 10s.	Library Committee, Port Elizabeth.
" 14	Berwick-on-Tweed—Plans of Police Station & Lock-up	£50, £25	Corporation.



An Architectural Causerie.

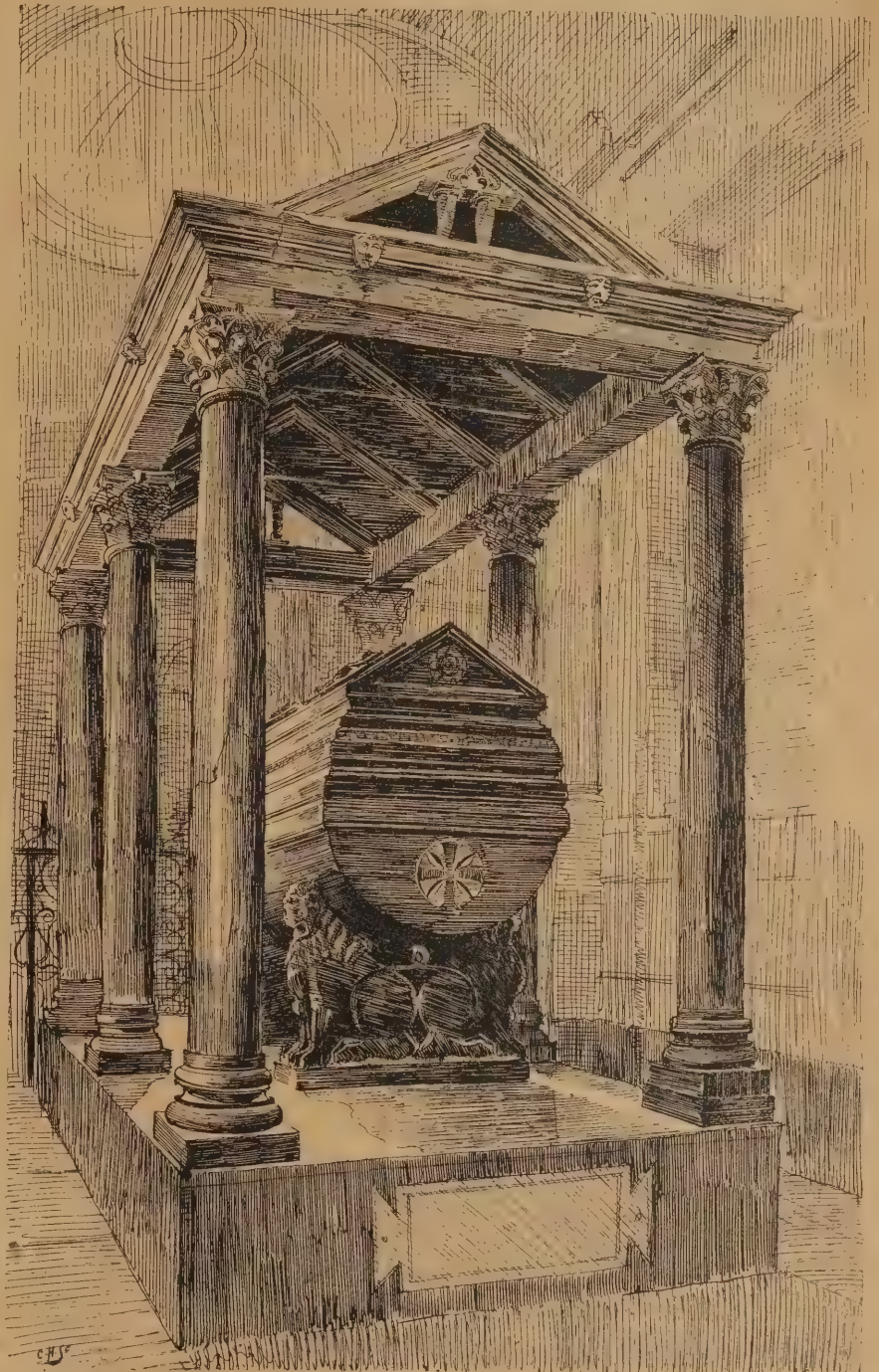
THE association of "The Migration tombstones and yule-of Ghosts." logs is one of those odd contradictions exemplified by lugubrious glee-singers and jovial undertakers; and there is hardly a periodical at this cheeriest season of the year which is without some thrilling ghost story or tale of haunted graveyard. We should, therefore, be missing a great opportunity were we to allow this New Year to become middle-aged without an attempt to drag forth our particular skeleton from his cupboard, and throw a little more light upon the architect's ghost. There are those who tell us that this ghost is a thing of the past, and that the bent-backed toiler for other men's reputation is banished for ever, since associations, academies, and institutes have made him realise the meaning of Swinburne's lines:

Unto each man his handiwork,
Unto each his crown.

Certain it is that the respectable, old-fashioned ghost is no longer extant to any marked degree, but in his place there has sprung up migratory spirits, haunting one office after another, restless, transitory, wandering ghosts, who call for our special attention, if not for themselves, at any rate for the influence they have upon the Architecture of the present day. The assistant and the ghost are quite separate entities; the one helps the work, the other is the spirit which animates the work. Every architect with a practice must employ assistants, no architect need employ a ghost. We are informed, however, that the ghost is quite content to remain invisible, and rather resents any pity which may be expended on him; being an artist and an altruist he works for his Art, and as long as that does not suffer he is perfectly satisfied. This seems a very delightful state of things to the superficial observer, but it will hardly bear analysis. Our contention is that the work does suffer, and must continue to suffer so long as there is one man to design and another to carry out the design, with all the responsibility which it entails. It is difficult to over-rate the importance of the author of a building identifying himself with that building from start to finish; yet how many ghosts there are who never even see their designs in execution, much less superintend them. The modern ghost is employed to fill the gap which his employer has vacant—possibly this means to supply the Architecture which is sadly lacking; having done this to the best of his ability, he migrates to some other "architect's" abode, creating a strange similarity of style between the work of architects "A" and "B." The British public, however, remain in blissful ignorance, and eventually a client, struck with the clever domestic work of "architect A," commissions him to build a house, little knowing that the style has changed with the ghost, and that "Mr. B" is the man who could best fulfil

his requirements. It may be strange that clients can be gulled in this manner, but it is humiliating to have to observe certain architects deceiving the public, simply because the man in the street knows absolutely nothing about Architecture as the practice of the Profession. Architects, of course, have their limitations, and the busy practical man often has not the time or ability to devote himself to the drawing-board; yet surely there must be a way

is given to the names of all those associated with an exhibit. It is ridiculous to suppose that a firm suffers which acknowledges the help derived from those employed on some pieces of work, or that the names are printed to satisfy the vanity of the craftsmen. Perhaps the day will not be far distant when the architect will accept his limitations, and, in the event of his employing a ghost, gladly give him the credit for his share in the work; the process may considerably swell the bulk



MONUMENT IN PALERMO. DATE 1200 A.D. SKETCHED BY A. N. PRENTICE.

to solve this ghost question, and to stop that migratory spirit which is so injurious to the artist and his Art. The idea of partnership has many objections, financially and otherwise, although there are instances where the ghost has blossomed into the junior partner, with great advantage to the firm. The catalogues of some recent exhibitions, notably that of the Arts and Crafts, seem to teach a lesson to architects in the prominence which

of our Academy catalogues, but we shall have reached a healthier state of things than has existed for many years. And with such a custom established, would not the poor ghost benefit in many ways? His own reputation—and future commissions—would be at stake; but above all, in acknowledging his work, we should be giving unto Cæsar the things which are Cæsar's.

H. S. M.

UNLIKE the vulgar little boy immortalised by Bret Harte, he was very proper, and looked after the office at No. 7 with a dignity that was out of all proportion to the duties he had to perform. He was short, round, robust, and red haired, and came to No. 7 half-an-hour before the others to dust the desks, brush the room, and generally put things straight. During the time when not engaged in mixing colours, or doing some odd job for the assistants, he was allowed to colour in the walls of some plan that was required in a hurry, and if at any time the work seemed to hang fire, as it so happened occasionally, his little head, crowned with an aureole of brilliant red hair, might be noticed poring over a drawing-board of unusually large dimensions, with paper pinned upon it to match. His small stature made it awkward for working the long T-square, but this difficulty, after some consideration, had been overcome by utilising a box to stand upon, and then, by dint of some straining and manoeuvring of his rotund person, he could push the square to the upper part of the drawing-board. Just at present he was setting out the perspective of a dome, which engaged nearly all his attention. Every modillion of the cornice from which the dome sprang was beautifully and accurately drawn in. The great pride with which every one was completed compelled him at times to drop off his box and trot round the drawing for a general survey, much to the amusement of a clever youth sitting on the stool next him. This youth, who had, by the way, great influence over the little would-be architect, would have worn upon his cadaverous countenance a look of having "sifted all philosophies" if it had not been for his eccentric eye. It was an eye hardly suitable for an architect's office: restless, and in moments of excitement, even unmanageable. But such as it was, it had a strange and weird fascination for the boy, and became, in seasons of depression, a sign, a symbol, so to speak, of assistance, for he seldom left the side of the youth without visibly recuperating under his friendly yet wandering gaze. His only relaxation from duties, for the most part self-imposed, was to visit the lady who kept a sweet shop over the way. Here he would throw off his dignified air and become almost frivolous, and to show his appreciation of the lady's charm who served him daily with lemonade, he would, when in a more than usually amiable mood, present her with a special pencil of hexagon shape, solemnly and calmly pinched from his master's store a day or two before. It has already been said that he was seldom other than dignified. It mattered little whether it was a pencil to be purloined, a packet of envelopes, writing or drawing paper to be removed, it was all done in that quiet yet cheerfully Pagan fashion that his best friend would have demurred to quoting for his moral benefit, "Thou shalt not steal." Some little time ago he came walking into the office, and in his pompous way informed the rest, amid much laughter, that he contemplated making drawings for the Soane Medallion. From that time forward he of the swivel eye held solemn conclave with he of the red hair. The drawer which held the Whatman's paper came in for a great deal of attention, and at times the office would be short of T and set squares. Even the india-rubber flitted at times, but no one complained—a secret and silent understanding seemed to move among the members of the staff. The result is not yet known, but the committee who adjudicate upon the drawings have retired to the cemetery—at least "they say" so.

G. LL. M.

Some Exhibited Etchings.

AT Mr. Gutilemen's gallery in King Street, St. James', Mr. D. Y. Cameron's etchings have for some weeks been on view, and together with these, the very beautiful drawings of his sister, Miss Kate Cameron. With regard to the latter, we have no hesitation in saying that they are surpassingly beautiful. To see anything like them, one must visit a neighbouring Japanese gallery, for Miss Cameron is undoubtedly a devoted lover and student of Japanese water-colour drawings. It is certain that nowhere else in the world has Nature so true an interpreter as in Japan, and Miss Cameron, who would appear to be young, could have no better teacher. There is a limit of her limitations in the preceding remark, for the genius of that country is anything but conventionally decorative. It is right to ignore the third dimension when one is employed on a plane surface, but wrong to suppose that this is the only concession that the decorative artist must make to convention, for waifs and strays—mere vagrant things—cannot of themselves form a restful design. We hasten, however, to say that it is not as "designs" that Miss Cameron exhibits her drawings. It is likely that we, at some later date, shall be invited to see her knowledge of Nature "applied," as we say, to the decoration of places and things, but for the present she could not do better, and should not hasten to change her ways. Too often it happens (thanks be to the Birmingham prison) that the opposite course is pursued, and that the artist thinks first of mere space-filling, and last of drawing even tolerably. As Life is begotten by Heat, so Heat is the subject here, whilst the objects are bees and flowers. As fragrance, colour, and solacing sounds belong as of right to the beautiful things she portrays, there is a "rare concert of all delight" in each of Miss Cameron's studies, and a possible poem in most of the titles she chooses. The "Pastoral Bandits" are murmuring bees. If we have allowed but little space in which to speak of Mr. Cameron's etchings, it must not be supposed that we do not think highly of them, the fact being that it would not be easy to praise his best work beyond its deserts. To speak first of the range of the etcher within the limits prescribed by the *métier*. He would seem to have learnt in the school to draw almost to perfection either faces, figures, or buildings, and only a little later to have mastered Rembrandt's art. We must not say more than a word on the etchings in which faces and figures appear, for his work as the architects' artist engages attention at present. It would be hard to particularise, as so many are even exceedingly good, and a mere list of the works would convey no idea of the etchings themselves. Suffice it to say that in the landscapes selected there are frequent reminders of Rembrandt, and of Meryon in the etchings of architectural subjects, those of earlier date more especially. It would be impossible to pass through the room without welcoming here, although we have seen it before, Mr. Cameron's "Holyrood Castle," the most important work he has done, not merely because of its being an obviously popular etching of an imposing historical scene, but because the artist has been by the subject inspired, and has certainly never done better. It is no pupil's work, and is on all accounts splendid.

E. R.

THE Douglas Corporation has obtained authority to borrow £17,000 for new municipal buildings and public library; £5750 for the erection of a block of artisans' dwellings; and about £7000 to acquire property for the improvement of the North Quay.

ECCLESIASTICAL DOORWAYS IN CORNWALL.

BY EDMUND SEDDING.

"ECCLESIASTICAL Doorways in Cornwall" was the title of a lecture delivered by Mr. Edmund Sedding recently at the Plymouth Institution. Traces of entrances, Mr. Sedding said, were found in the most primitive habitations of man, on Dartmoor, in Scandinavia, and in Brittany, where there were no traces of windows other than the smoke hole. The earliest indications of entrances were of a rude square shape. Right through the Celtic, Syrian, and Egyptian periods the doorways were of a rectangular form, which came to be scientifically proportioned in the time of the Greek dynasty. It was this kind of entrance that was found in every dwelling-house of the present day. Roman entrances were semi-circular headed, for in their time the arch developed. There was

NO EVIDENCE OF ROMAN WORK

above ground in Cornwall, although the Roman occupation was known as far west as the Lizard, and on the north, ten miles outside Newquay, by the coins and ornaments dug up. After the Romans left this country, in 415, England was a prey to hordes of barbarians, Picts, Scots, Danes, and Saxons, who each had their turn, but left no indication of their occupation, except the Saxons. Traces of their work could be found in nearly every part of England, with the exception of Cornwall, but, no doubt, if they had been skilful builders in stone instead of wood, their work would have escaped the ravages of the humid climate. The Saxons being timber constructors, there were very few walls of Saxon workmanship remaining, but their form of construction could be seen in the little church at Ongar, in Essex, which shows a range of trunks of trees placed in juxtaposition, with the inside simply plastered. Being subject to incursions from the northern tribes, the Saxons erected towers as places of refuge, and it was by these that their Architecture was best known. The little church at Monks Wearmouth was a typical example. Referring to the effect of Norman work, Mr. Sedding said he considered it was very

LUCKY FOR ENGLISH ARCHITECTURE

that the country was invaded by the Normans, who were splendid stone constructors, and found in the mean Saxon edifices a stimulant to erect ones of much nobler proportions. In Cornwall Norman doorways were to be found at St. German's, Mylor, St. Cleer, and St. Martin's, Looe, but they only ranked third rate. There were very few examples of first pointed work in Cornwall, and all ornate workmanship was very simple, no doubt owing to the hard materials they had to deal with. There were also few specimens of the succeeding style, but good examples were to be seen at Lostwithiel and Egloskayle, the west door of which was of catacluse stone in splendid preservation. Two snakes were worked into the mouldings of the jambs, the head forming the capital of one, and the tail the capital on the other side. The body formed a bold shaft moulding. Out of 200 old churches in Cornwall no less than 180 were examples of the Perpendicular period. Some were very bold and effective, particularly those at Saltash, St. Keverne, and St. Cleer. It was curious to note that granite was hardly ever used with much skill until the fifteenth century, sandstone and other local stones being the materials used. The Normans always worked in freestone. The lecturer pointed out that the idea of the work in Cornwall was entirely different to that of the churches of the North and Midlands. There were only three churches in Cornwall with frescoes, Fowey and Lostwithiel being included. Mr. Sedding concluded by expressing the desire that some society would endeavour to save the old buildings. He reminded them that the old buildings were entirely dependent upon their care and vigilance in watching and restraining the destroying process.

THE CONSTRUCTION OF FIVE FAMOUS DOMES.

BY JOHN MARSHALL.

NO. III.—THE DOME OF ST. PETER'S, ROME.

A PERIOD of over 100 years elapsed between the completion of the dome of the Duomo, at Florence, and the commencement of that of St. Peter's; yet the latter is the next, of any considerable importance, in the order of succession.

While possessing many features in common, these two domes are, in several respects, very dissimilar, the splendid resources of the Renaissance having, in St. Peter's, contributed towards a grandeur of effect hitherto unattainable.

In plan, the supporting structure may be described as a compromise between that of Sta. Sophia and that of the Duomo. The piers, which rise from the angles of a square, are so shaped as to give to the central area the form of an irregular octagon, the shorter sides of which are occupied by the piers, while the four longer, each measuring 75ft., are open to the main extensions. By this concentration, so to speak, of the supports in four exceptionally massive piers, all the advantages of the octagonal plan are secured without that contraction of the openings which, as in the Duomo, cannot but be regarded as a serious defect.

Each of the piers is, roughly speaking, 60ft. square on plan, and occupies the vast area of over 3100 square feet, the aggregate being equal to nearly one-third of the total area of the central compartment. The openings are spanned, at the height of 110ft., by semi-circular barrel vaults, 28ft. in depth, which receive, and derive abutment from, the vaulting of the adjoining extensions.

Thus far the arrangement presents nothing strikingly novel; but from this stage is made a departure, so bold and aspiring, as almost to result in the realisation of the proud boast of Michael Angelo that he would "raise the Pantheon in the air."

When treating of the great Florentine dome, it was pointed out that, springing from an octagon, it is, consequently, deficient in some important structural qualities which exist in a dome of circular plan. In St. Peter's, where also the plan of the substructure is octagonal, these qualities are imparted by the introduction of the pendentives, not at the base of the dome, but at the base of the drum, at which level the circular plan is developed. In the pendentive itself, as it exists in Sta. Sophia and in St. Peter's, respectively, an important difference must be noted. In the former, where the weight is small in comparison, the pendentive, rising from the actual internal angle of a square, springs from a mere point, and is brought forward to such an extent that no portion of the dome is directly over the piers; but in St. Peter's, where the weight of the superstructure alone exceeds that of the whole of the Pantheon, it was found necessary to bring the supports more directly under the weight. This has been effected by filling in that portion of the piers where would, otherwise, have been the internal angles of the square, and thus actually advancing the supports beneath the superstructure. Under this arrangement the pendentives have but little weight to sustain, and may be aptly described as a corbelling over of the shorter sides of the octagon, but with a curve so slight as to be hardly perceptible.

At the level of the plane of the circle developed by the pendentives, and at the height of 160ft. from the floor, the structure assumes, on the exterior, the form of an octagonal platform, whence rises the first stage of the superstructure. This consists of a circular basement, plain and massive, rising to the height of 37ft., and having an external diameter equal to that of the Pantheon. The immense thickness of its wall—28ft.—aids in

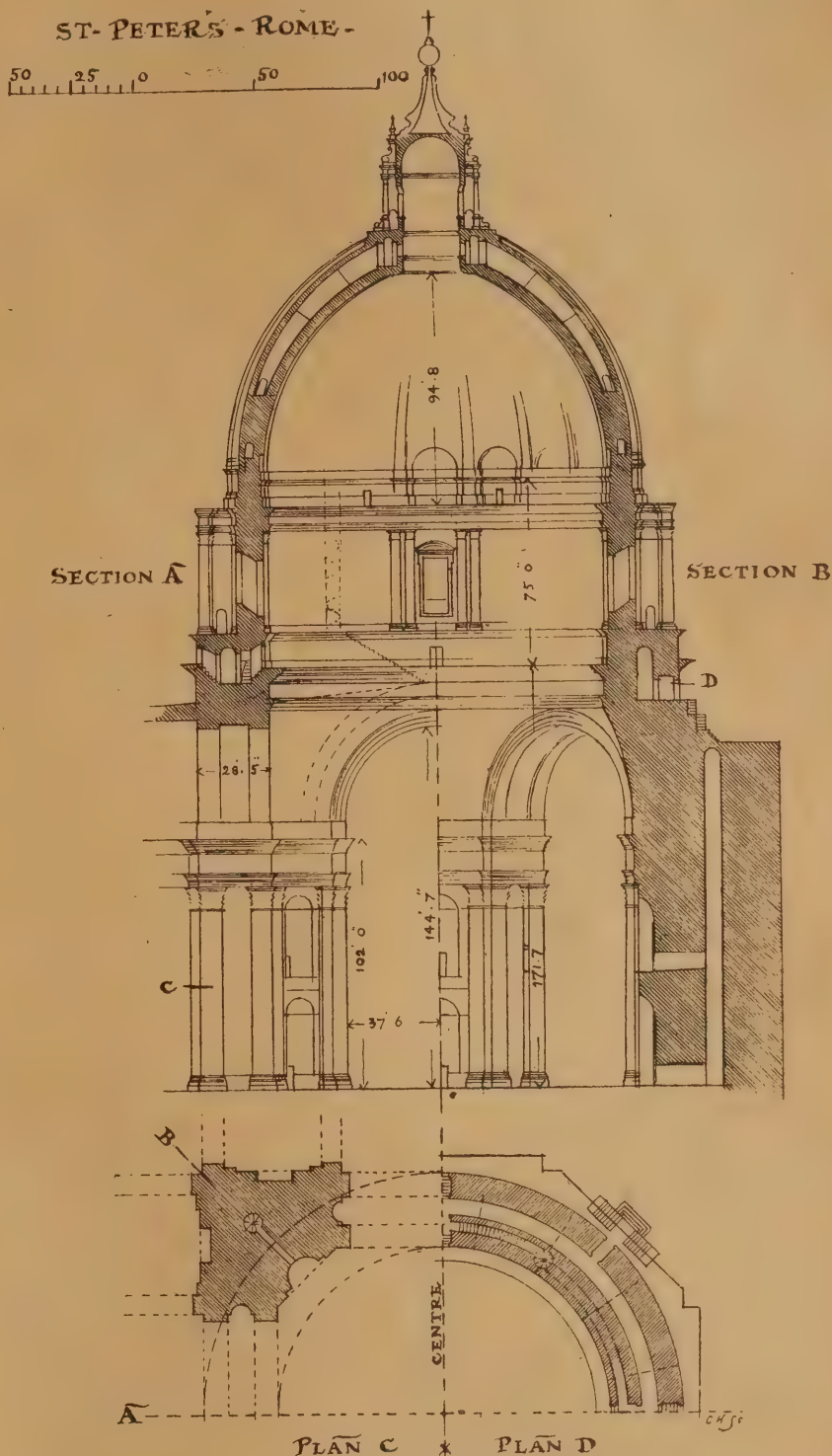
the distribution of the superincumbent weight; while a continuous vaulted corridor, 7ft. wide, and communicating with the several galleries and staircases, is formed in its thickness. A peculiarity to be noted in this corridor is the numerous inclinations in the floor, which are occasioned by the upper rims of the supporting vaults.

The prevailing character of the next stage is one of great lightness, the skilful disposition of material producing an effect most

pierced with a continuous range of windows without entailing any loss of strength.

Yet, notwithstanding the advantages, artistic and structural, accruing from the presence of the peristyle, it has introduced into the dome one serious element of weakness. This is seen in the fact that it is unavoidably limited, at its springing, to a thickness utterly inadequate to withstand the bursting pressure of the lantern. The evil is greatly aggravated by raising the wall of the drum some 15ft. higher than the peristyle, and also

ST. PETER'S - ROME -



elegant and artistic. Instead of the wall being carried up a solid mass of sufficient thickness in itself to resist the thrust of the dome, as in the Duomo, it is kept comparatively thin, and supplemented by the peristyle. This consists of thirty-two columns, disposed in sixteen couples, placed at equal distances round the wall, with which they are connected by solid masonry for the purpose of abutment. The presence of these ornamental counterforts also admits of the wall of the drum being

by adopting for the dome a section but little removed from the hemispherical—the radius drawn to the vertex of the inner vault making, with the vertical, an angle of only 12deg. An endeavour to defeat the crushing weight of the lantern is made by increasing the total thickness toward the crown. Yet, though this gives to the dome greater power of resistance at the summit, the weight is increased precisely where it should, if possible have been reduced.

The height from the floor of the church to the springing of the dome is 246ft., and the internal diameter, at this level, is 137ft. 6in., or only 1ft. less than that of the great dome at Florence. The cellular system of construction in both is similar. But, as just intimated, the two vaults are not concentric, the total thickness gradually increasing from 9ft. at the springing to 14ft. at the crown. For this disparity, some compensation is obtained by building the shell solid to a point about 20deg. from the springing. At this level the inner vault has a thickness of 6ft., the outer of about 2ft. 9in., the thickness of both slightly diminishing in the ascent. The plan being circular, the system of converging ribs, or counterforts, by which the inner vault is strengthened, is less complicated than is the case in the Duomo.

The sixteen ribs are of stone, and rising from the level of the springing of the inner vault, are reduced considerably in width by a series of abrupt breaks, so as to limit the weight towards the summit, where they terminate at the corridor round the central eye, and receive the platform for the lantern. The two vaults are of brick, not laid in radiating courses, as at Florence, but herring-bone wise.

In St. Peter's, as in most other domes built of brick, an outer covering of metal has been deemed expedient, though it cannot be denied that a facing of stone would have been more in keeping with its structural character, and also productive of a much finer effect. The grandeur of the design is still further impaired by the numerous small openings in the outer shell, which light and ventilate the internal spaces.

The lantern, which is almost wholly built of stone, may be regarded as a miniature counterpart of the work below. Its internal diameter is 23ft., and its height to the top of the cupola 40ft. The conical roof, which is of brick, faced with stone, supports a metal ball and cross, which complete the structure at the height from the floor of 437ft.

From what has gone before it will have been gathered that the constituent qualities of the dome of St. Peter's are sufficient for its own stability only, and that to render it equal to the task of supporting the lantern, recourse must be had to some extraneous aid. The only appliance available in this emergency was the tie, and it is here applied to an extent beyond all precedent, and even now, perhaps, without parallel. Both as a means of counteracting thrust, and in respect of durability, the tie is, of course, far inferior to a substantial abutment, and can, at the best, only be regarded as a poor substitute for structural strength; yet it possesses one great merit—it can be applied exactly at the part where it is most needed, and that without making any appreciable addition to the weight of the fabric.

Round the inner vault of St. Peter's were originally inserted four iron ties—two near the level of separation, about the weakest part; one between these and the springing; and the fourth not far from the summit. But about 140 years after the erection of the lantern, the occurrence of serious fractures in the dome showed the need of further precautions, and six additional ties were inserted—one round the basement story; another a little above the peristyle; and four at different heights round the exterior of the dome. It should be mentioned that the fractures were not wholly due to the pressure of the lantern, the cause being shared in by disturbance of the substructure.

Thus, unlike the Florentine dome, which possesses, in the nature of its own construction, an independent strength adequate to all requirements, and whose single tie was inserted more as a prudent precaution, than as an absolute necessity, the security of St. Peter's is literally dependent on the tenacity of iron chains.

The fact of the outer vault being turned at a higher pitch than the inner, seems suggestive of what has since come to be recognised as a condition essential to the dome, i.e., the complete separation of the two vaults.

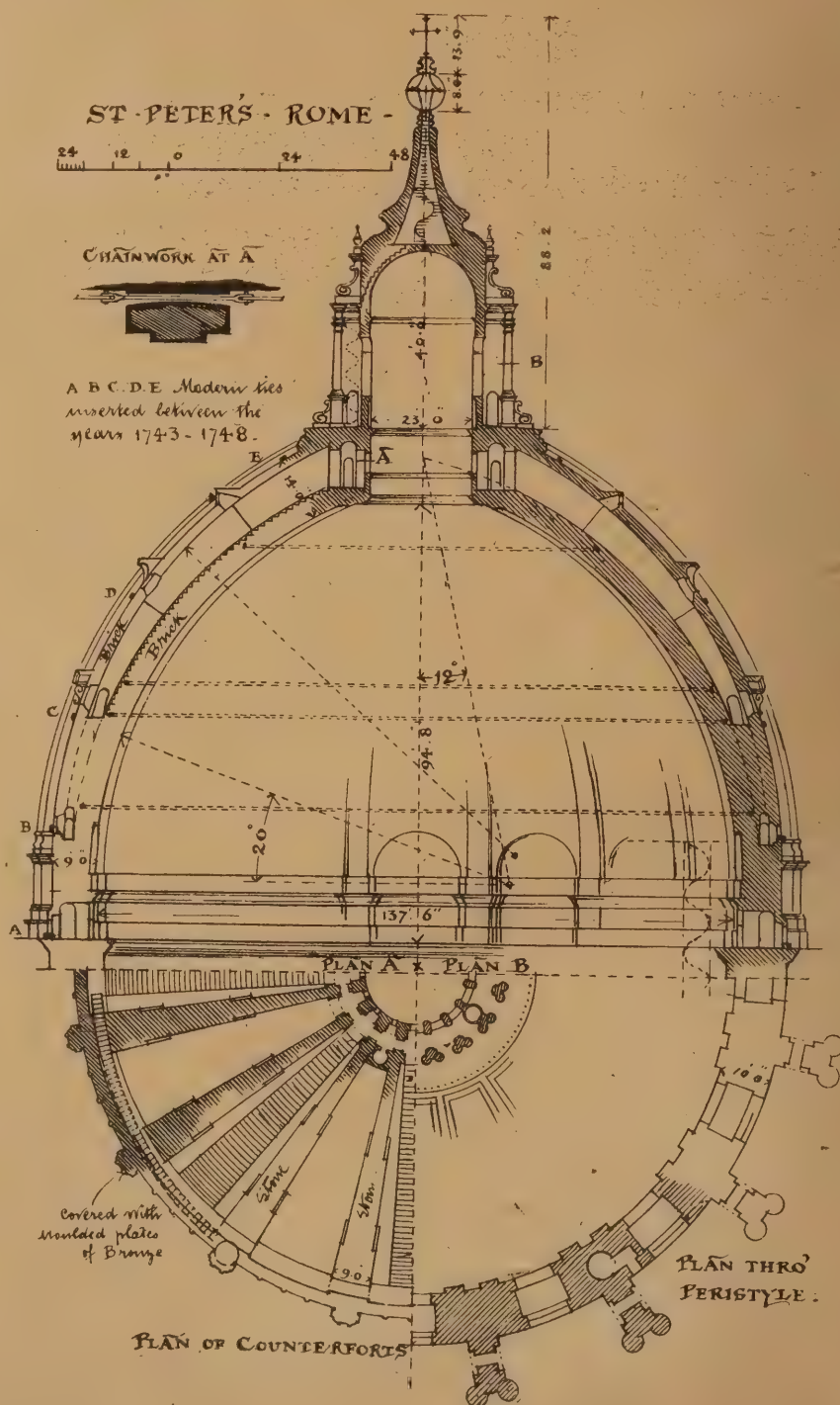
Yet, though falling short of a perfect solution of all the difficulties involved, the dome of St.

Peter's does, undoubtedly, mark a decided advance towards success; and its architectural treatment has served, preferably, as a model for nearly all the more important domes of later times.

HISTORICAL SKETCH.—The dome of St. Peter's is the result of the successive labours of several architects. The church was commenced A.D. 1506, from the designs, and under the superintendence, of Bramante, who conceived the idea of erecting the dome in the position it now occupies; with whom also originated the further idea of applying the peristyle to the dome. The four main piers, and the arches which spring from them, were the only portions completed at the time of his death, A.D. 1514. As successors to Bramante, Leo X. appointed Giuliano da San Gallo, Raphael d'Urbino, and Giocondo da Verona; but, in a short time, the whole devolved on Raphael, who was, however, assisted by Antonio da San Gallo; but, beyond strengthening the four piers, they did but little, in their joint capacity, to advance the work. The death of Raphael, in 1520, led to the promotion of his assistant; who, having sole and undisputed control, repudiated the designs of his predecessors, and prepared an elaborate model,

embodying his own ideas for the whole edifice. Want of funds caused a further delay; and when, in the year 1546, and the Pontificate of Paul III., San Gallo died, Michael Angelo Buonarroti was called upon to carry on the work. Discarding, in turn, the pretentious design of his predecessor, he prepared one of more modest character, on the plan of the Greek Cross, but retaining, and giving greater mass to, the piers *in situ*. His design being approved by the Pope, the work was resumed; and, notwithstanding many interruptions and delays, it progressed until, in the year 1559, and the reign of Pope Pius IV., it was advanced to the base of the cupola. A model of the dome, in clay, was prepared by Michael Angelo, and afterward more carefully repeated in wood; and it is to his genius that the main portions of the existing structure must be credited. When, in 1585, Pope Sixtus V. appointed Giacomo della Porta and Domenico Fontana to complete the work, the erection of the dome was proceeded with, and Michael Angelo's original design carried out with but little alteration.

The lantern was erected from a design prepared by Vignola, who had been appointed architect in 1564.



MEDIAEVAL CHURCH BUILDERS.

THE 200th anniversary of the opening of St. Paul's Cathedral, recently celebrated, has a very general interest, as being a noteworthy landmark in that wonderful historic vista of great churches, abbeys, and the religious houses built by the masons of the mediæval guilds, which constitute at once the most momentous achievement, and the most sacred heritage, of the human race. The first stone of the new St. Paul's was laid by Wren on June 21st, 1675, without any public ceremony; the highest stone in the lantern was fixed with full masonic honours. Old St. Paul's stood on the site of

A TEMPLE DEDICATED TO DIANA,

which was destroyed and rebuilt; and it is probable that its foundation-stone was laid with masonic ritual by the "collegium," or guild, of the Roman builders who erected it. After certain ceremonies of dedication the stone, previously suspended by rope and pulley above its destined position, was let down into its place by the prætor, assisted by the chief magistrates and priests, where it was secured by wedges of virgin gold or silver. The operation being concluded, the aruspex came forward and said, in a loud voice: "Let not this work be unhallowed by the conversion of this stone or gold to any other use." But whatever the origin of modern, or, as it is often called, "speculative" masonry, there is no doubt, the Globe remarks, that the true operative masons can claim an historic continuity with their Greek and Roman predecessors. The Greek temples were the work of architects in association with organised fraternities of workmen, and the chief

PUBLIC BUILDINGS OF THE ROMANS

were erected in the same way. One of the earliest memorials of the Roman dominion in England is a stone found at Chichester in 1725, on which was the dedicatory inscription of a local temple to Minerva and Neptune by the "College of Masons." These associations existed probably for much the same reason as the "guilds" which succeeded them; that is, for the consolidation of their trade interests and the preservation of their trade "mysteries." The masons' guilds were not organically different from those of the other crafts, but they soon developed an importance from the special nature and circumstances of their constitution. The ordinary artisan performed his work in his own town or city, and not seldom in his own dwelling; but a great cathedral or priory could only be erected on its site by many long years of labour. Thus, the men had to come from afar to their work, round which many spent their whole lives. Charlemagne invited artificers from every country in Europe to build his

MAGNIFICENT CHURCH AT AIX-LA-CHAPELLE.

The German operative masons attributed their first organisation to the building of Strasburg Cathedral, in which their original statutes are preserved. The building of the cathedral at Cologne led to a similar result, and "colleges" of masons were formed in both cities. The Scotch operative masons date their embodiment from the completion of the Abbey of Kilwinning, about 1150; and the chapels of Roslyn and Holyrood, and the abbeys of Melrose and Kelso, are among the many monuments of their skill. Foreign masons owed their first introduction into England to Wilfrid, Archbishop of York, who employed them in 674 to build the church at Hexham. Many of these men were "taken on" by Benedict Bishop for his new abbey at Weremouth; and he also went to France for "stone-workers, able to build his church of stone, after the Roman manner." Before this period our ecclesiastical buildings had been chiefly constructed of wood, and even when King Alfred began to restore and rebuild them, in the ninth century, he had to send abroad for the necessary masons. These early workers were chiefly employed in the North of England, keeping themselves distinct from other artificers, and preserving their trade secrets

from outsiders by means of secret signs and tokens, revealed alone to the initiated. The introduction by the Normans of their own style of Architecture naturally involved the employment of the only skilled labour that could give it effect. When rebuilding the choir of Canterbury Cathedral, in the twelfth century, Archbishop Lanfranc sent for the masons who had had experience on the great churches at Caen. Chief among these was the famous William, of Sens, the first known "master mason" in England, he being succeeded by "William, the Englishman," who had probably worked under him. Gundulf, Bishop of Rochester, who was also a Norman architect, resorted to the same field for the building of Rochester Castle and Cathedral. During the thirteenth and fourteenth centuries, a large number of

ECCLIASTICAL STRUCTURES

of all kinds were erected, including several of the colleges at Oxford and Cambridge. In Henry III.'s reign alone more than 150 abbeys,



ST. PETER'S, ROME.

priorities, and religious houses were built. By this time the European masons had become numerous and powerful bodies, composed chiefly of Italians, Greeks, French, Germans, and Flemings. Several privileges were granted them by the Popes, such as the right of fixing their own prices, of taking apprentices, and of admitting "accepted" masons into their corporations. Hence they style themselves "Freemasons," and presently began to claim exemption from the laws affecting common labourers. But though they were granted higher rates of wages than those of other artificers, they held no exclusive privileges in this country, and contumacious masons were amenable to the law. Soon after the restoration of Winchester Cathedral and the death of William of Wykeham, they excited the jealousy of the Government by seeking to influence the general "wages of labour," and in 1423 an Act was passed prohibiting "the

chapters and congregations of masons in tyled lodges," on pain of various penalties at the King's will. Some years later the Scotch masons also began to assume powers beyond the proper functions of their lodges, and were denounced as oppressors of the lieges because they demanded "to be paid as well for the holiday as for the work-day." The

ARCHITECTS OF THE GREAT CATHEDRALS

were not usually themselves members of the masonic fraternities. Occasionally they were laymen of skill and taste, but oftener bishops and abbots. It has been said that the honour due to the founders of many churches has been usurped by the ecclesiastics under whose patronage they rose, because the only historians were monks. But, practically, the only architects were monks too. In the Middle Ages the greatest influences emanated from the monasteries; and their heads, as a rule, were alone in possession of a sufficient knowledge of geometry and design to conceive the magnificent buildings which are their lasting monuments. We know what Carlyle Abbot Samson achieved in this direction, and even the minor question of necessary repairs had to be undertaken by him. His it was not only to rebuild the great tower of St. Edmund's, but "to change combustible decaying reed-thatch into tile or lead." And an interesting record exists showing that, some three centuries later, the then Abbot of St. Edmundsbury contracted with John Woode, master-mason, for the restoration of this same tower, "in all manner of things that belong to freemasonry." Similar records, giving the names of

THE MASTER MASONS EMPLOYED,

exist in the archives of the cathedrals of Winchester and Lincoln, of Evesham Abbey, of the chapels of Fotheringhay and St. George's, Windsor, as doubtless in those of others of the more venerable churches and minsters. Coming in numbers from all quarters, the workmen thus employed had of necessity to live in cantonments round the building in progress, and were thus thrown together even in their hours of leisure. They were under the control of the master mason, who was assisted by "wardens," and the close adhesiveness of the fraternities, or "lodges," seems to have been an almost natural result of their environment. Time tries all things; and it has proved the wonderful work of these mediæval craftsmen, and shown how "well and truly" they laid stone upon stone. There was conscience in their building, and a just pride in its result. Some of the masons were artificers of great reputation, and many a "mason's mark" upon an ancient stone shows the

SIGN-MANUAL OF UNLETTERED MEN

who have died and left no other record. They also manipulated their mortar and cement with infinite pains, leaving a saying that they should "dilute with the sweat of their brow"; that is, labour the mortar a long time, instead of drowning it with water to have done the sooner. With what result is shown by many a storied ruin, of which it is easier to break the component parts than to detach them from each other. In a bill for repairing the spire and battlements of Newark Church in 1571 is an item of 4s. 8d. for 350 eggs "to temper the lyme with." There are many and varied readings of the phrase, "the good old times"; but, at least, the men of those days knew how to design for beauty, and to build for endurance. And they did it,

THE Lancaster Town Council has approved the purchase for £30,000 of the King's Arms Hotel and estate, the latter intended for a covered produce market. Other £5000 was sanctioned for the continuation of improvements in congested thoroughfares.

COLONEL A. G. DURNFORD, R.E., has held an official inquiry at Birmingham with respect to an application by the Council for sanction to obtain loans amounting in the aggregate to £60,000, with which to carry out certain street improvements.

CARDIFF COMPETITION.

COMMENTS BY THE ASSESSOR.

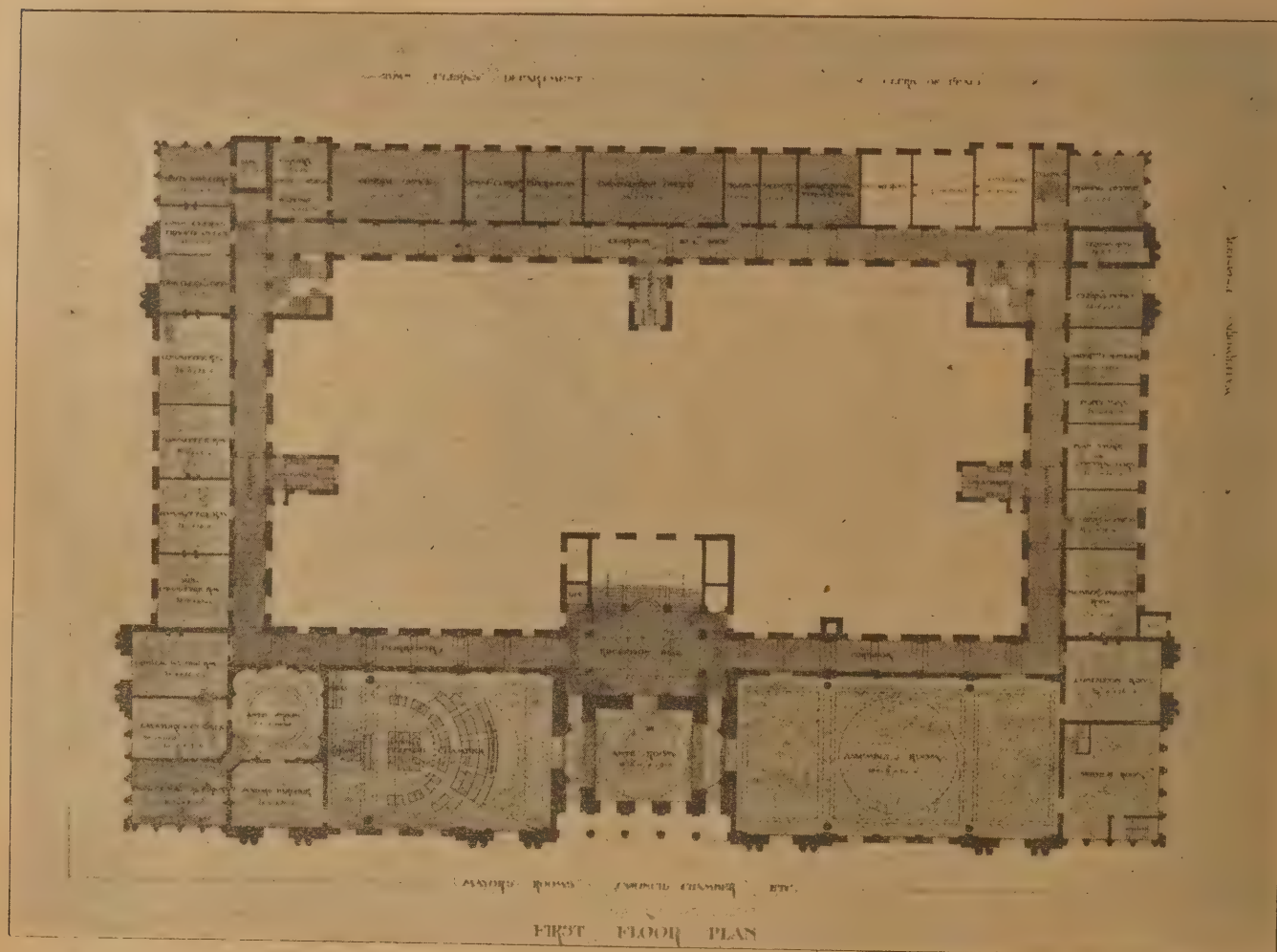
IN the present issue we conclude our illustrations of the three premiated designs of the Cardiff Town Hall and Law Courts Competition. The report of the assessor, Mr. Alfred Waterhouse, R.A., was read at a recent meeting of the Town Hall Committee. In this report Mr. Waterhouse, commenting generally, says the fifty-six sets of designs submitted are "of unusual excellence, and most of them have substantially fulfilled the conditions imposed, with some little exception as to cost." On this account alone," continues Mr. Waterhouse, "I am sorry to say I have been obliged to set aside several promising designs. Out of the fifty-six I, with some

generally and their consequent spread over the surface of the ground. This, no doubt, has arisen from the ample site you had to put at your architects' disposal. In a park and among trees, buildings, no doubt, look better low rather than high; but the pursuit of lowness has its disadvantages when it prevents the concentration of departments, and I think there is danger in this direction in the present case. It shows itself in length of corridors and number of staircases and entrances."

In his "Notes" on the three premiated designs, the assessor said, with regard to No. 22, the first premiated design, that—"this design has been worked out with a thorough appreciation of the peculiarities of the site," and "for the balance of the buildings on either side of north avenue." "The elevations," added Mr. Waterhouse, "are, perhaps, somewhat stern, and they and the dome somewhat depressed under the height of the very lofty tower. The

As to No. 6 (the designs placed third in the competition), Mr. Waterhouse writes:—"There is rhythm and dignity about the elevation of the Town Hall. Indeed, in this respect it strikes me as one of the most perfect in the competition. The plan of the corridors and sanitary blocks is unexceptional. The Assize Courts block is not so satisfactory (see side elevation). The details are poor."

It may be noted that a committee of ratepayers has been formed to strenuously oppose the erection of the new municipal buildings in Cathays Park. The committee, it is understood, do not intend to oppose the purchase of Cathays Park, but simply the removal of the Town Hall from what they claim to be the centre of the town. In furtherance of this movement a memorial is being signed by many ratepayers, who believe that Cathays Park is



CARDIFF TOWN HALL AND LAW COURTS COMPETITION. THIRD PREMIAED PLANS BY MESSRS. COOKSEY AND COX.

difficulty, selected nine, as those which appeared to have realised your conditions in the most masterly way, and these, on closer consideration, were finally reduced to the requisite three. At least three out of the nine had to part company from their fellows on account of the extraordinarily low estimate put upon the work to keep within the prescribed sum. I need hardly point out to you that it would be most unusual to obtain a design by a competition of this sort which perfectly met all the requirements of the case without alteration. Having once selected a design which shows its author to be both an artist and an adept at architectural planning and design, the necessary modifications need not long delay the preparation of the working drawings nor of necessity increase the cost of the building. One feature in this competition will doubtless strike you. I allude to the lowness of the elevation of the designs

elevations are but 35ft. high to the top of the parapet and the tower 220ft. Might not the former be raised somewhat, and the latter lowered with advantage? There is a refreshing vigour about the details which are well designed: the plans also of the building are exceptionally good." After dealing with minor defects, Mr. Waterhouse says:—"The police courts are on the west and not on the north side. This is, perhaps, not in strict compliance with the letter of the conditions, but I think it complies with the spirit, as the courts are entered, as required, from the North Road."

Dealing with No. 25 (the second premiated) the assessor says:—"This is an exceedingly clever design. The buildings on either side of the North Road do not balance. There is no central tower, but two at either end of the Town Hall buildings of very beautiful and rich design." But they have their defects, and these are pointed out.

not, and will not in the future, be the most convenient site for the Town Hall.

We are informed that the partnership hitherto existing between Messrs. Wimperis and Arber has been dissolved, and that Mr. W. H. Arber, of the late firm, will continue to carry on the business at the same address, under the style of "J. T. Wimperis and Arber," as heretofore.

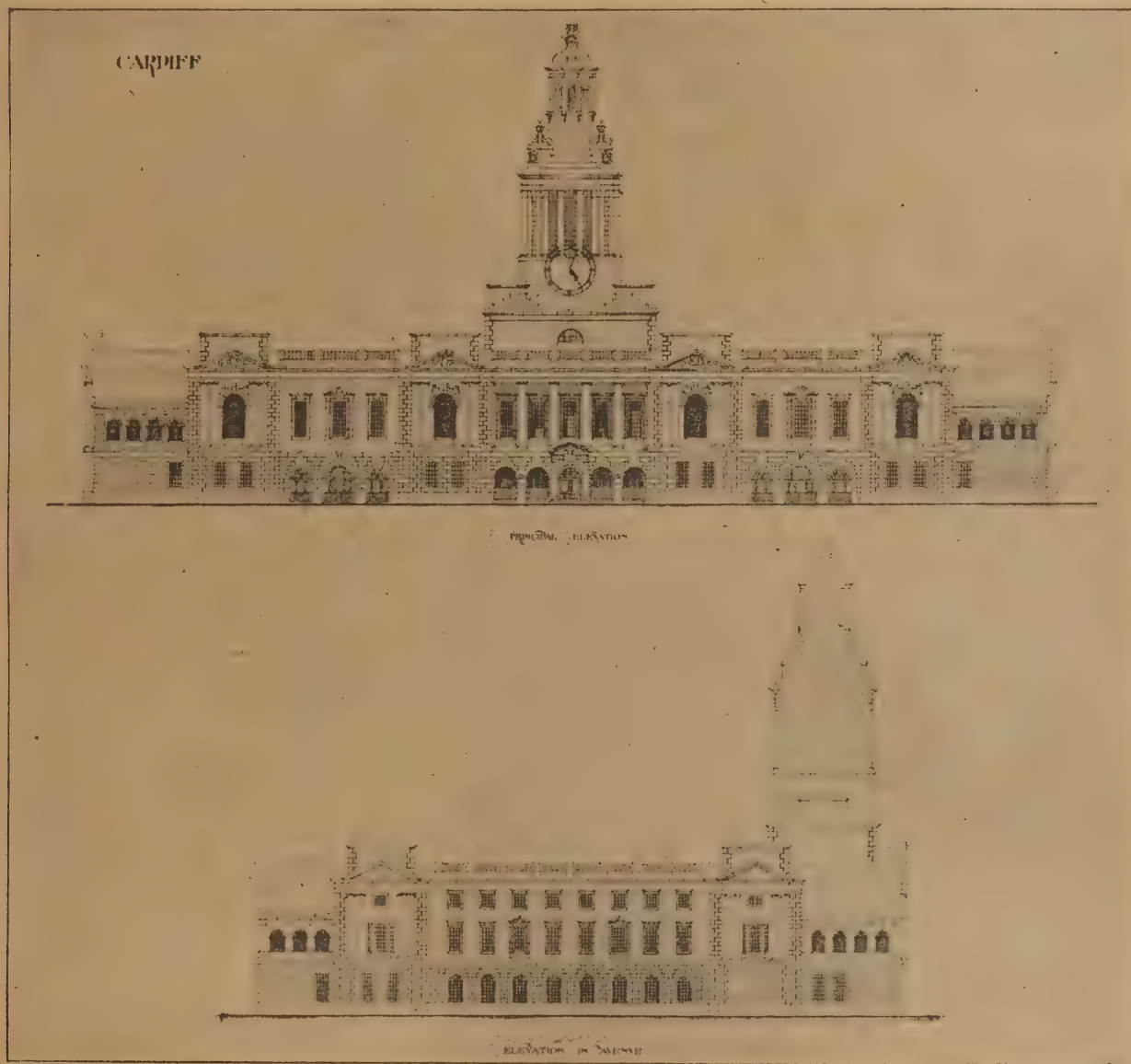
The multiplication of theatres and music-halls in the suburbs may be gauged from the engagements of Mr. G. R. Sprague. At the present moment he has in hand, besides Morton's new theatre at Greenwich, three Empire music-halls—one at Buxton, one at Stratford, and one at Holloway. He has also contracted for music-halls at Kennington and Notting Hill Gate, and for Mr. Wyndham's new theatre in Charing Cross Road.

A SCOTTISH BARONIAL RESIDENCE.

CAIRNBULG CASTLE may fairly be described as a fine old baronial residence. It has recently been restored at a cost of £5000. In the restoration work, Mr. Duthie, the owner, has rigidly adhered to the old lines, and the Castle, as completed afresh, is as nearly as possible a copy of the old baronial stronghold which was a conspicuous mark in the landscape of North-Eastern Buchan, three or four hundred years ago. For the last sixty years the building has decayed and tumbled down at a great rate, and when Mr. Duthie commenced the work of restoration the only

of opposing hosts that periodically overran the Buchan district, when the clan spirit was at its strongest all over the North. The north portion of the building forms the square tower or keep, and is supposed to be the oldest part of the Castle. The old walls of the tower have been retained and some of the floors strengthened, but otherwise this building has been renewed. The roof now covering the tower is in appearance a reproduction of that of the olden time. The walk round the battlements at the top of the keep has been repaired. The basement floor, or dungeon, may become a wine cellar. On the next floor above, which was the great dining-hall in the olden times, there is space for a dining-room or billiard-room. In the other flats, 'twixt the first floor and the battlements, is ample space for bed-

chimney panel of this room are cut out the following significant words: "Remove not the old landmark." Over this room is an octagonal bedroom, while above that again is placed the library, the arrangements of which are rather unique. Two rooms (in height) have been thrown into one, and only portions of the floor round the walls of the upper room have been left. The floors of these rooms are all pitch-pine and polished, and all the places are most tastefully fitted up. The old-fashioned "dog" grates or brasiers fitted into the rooms are extremely pretty. From the library there is access to the top of the round tower, from whence a promenade or walk runs round the east side of the roof, giving a pretty view of the country to the east and south. The building between the north and south



CARDIFF TOWN HALL AND LAW COURTS COMPETITION.

THIRD PREMIATED DRAWINGS BY MESSRS. COOKSEY AND COX.

part standing was the square tower or keep, and that not in a very safe condition. The oldest parts of the Castle were built and occupied by the powerful family of the Comyns (Earls of Buchan); but the exact date when the Castle was originally created has not been ascertained. It must, however, have been at a very early date, for history declares that when the Comyns were overthrown, the Castle was, in 1306, forfeited to the Crown. A description of the Castle restored is practically a description of the castle as it stood 150 years ago. The Castle was never a palatial or showy building, to which the architect or the sculptor had devoted his talent or Art, but rather a plain and sure stronghold, calculated to withstand the attacks

rooms. The old stone staircase has been replaced by a wooden spiral staircase of ninety-six steps, which runs from the ground right up to the battlements. The graceful round tower, of very much smaller dimensions than the keep, which forms the south wing of the Castle, has been restored to its original shape, and for some time at least will form an important habitable part of the Castle. While strictly conforming to the original exterior form of the buildings, Mr. Duthie has finished and furnished the interior of the Castle in a way suitable to the tastes and comforts of the age. The basement of the round tower has been converted into a cloak-room, while the room above has been utilised as a business room. Over the fireplace on the

towers is entirely new, and though the exterior follows the old form, the interior arrangements are completely modern. There are entrances to the Castle from the garden and the servants' court; but the principal entrance is from the south-east side near the round tower. This entrance is a very fine one. There is a flight of seven steps, 7½ ft. wide, of Corrennie granite, with pillars and handrails of the same material. The outer door is of teak wood, and studded with inch-headed nails. Messrs. Jenkins and Marr, Aberdeen, were the architects for the restoration, and Messrs. Brebner and Jenkins, Fraserburgh, the contractors-in-chief. The "new" Castle of Cairnbulg is already attracting considerable attention.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
January 5th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

The assessors appointed to adjudicate upon the drawings of a new cemetery for Nottingham, sent in by competitors in response to an advertisement of the Public Parks Committee, have awarded the premiums as follows:—(A) Landscape Gardening, &c.—first premium, Mr. Thomas W. Mawson, The Corbels, Windermere; second premium, Messrs. William Barron and Son, Elvaston Nurseries, Borrowash, Derby. (B) Chapels, Lodges, &c.—first premium, Mr. Arthur E. McKewan, A.R.I.B.A., and Mr. Alfred I. Dunn, A.R.I.B.A., Colmore Chambers, 1, Newall Street, Birmingham; second premium, Mr. Chas. A. Nicholson, M.A., and Mr. Hubert C. Corlette, A.R.I.B.A., 28, Theobald's Road, Gray's Inn, London. The drawings can be viewed by competitors and members of the City Council at the Guildhall, Burton Street, up to next Friday.

In the matter of commercial prosperity Art has continued, during 1897, to be affected by the depression which has been definitely felt in nearly all branches of trade. The sales at exhibitions were for the most part below the average of recent years, and commissions were by no means plentiful in the studios. As a result of the Jubilee a few painters have been busy with official portraits, or have received commands to paint commemorative compositions recording special events connected with this great national function; but as a whole the influence of the stir and excitement which prevailed during the season was quite unfavourable to the generality of artists, and tended rather to check than to encourage the readiness of buyers. Among sculptors there has been less depression. The younger men who have adapted themselves to the changed condition of the popular demand, and have set themselves to supply what is wanted in the way of decorative work, have been kept reasonably busy, and their prospects for the future seem encouraging.

ONE of the best and most promising characteristics of the past year, one that is full of excellent augury for the future, says the Globe, is the rapid development of the movement, which has of late assumed great proportions in the provinces, for providing really satisfactory facilities for the introduction of modern Art work to the public. The need for properly arranged and liberally endowed Art galleries in all the more important towns is fast becoming a definite conviction in every part of the country. The chief manufacturing centres have taken the lead in this matter, and their example is being widely followed. Considerable sums of money are being expended upon new buildings or upon the enlargement and improvement of galleries already existing; and we may fairly hope to see, before long, a general recognition of the part that works of Art are able to play in the scheme of national education. What is indispensable in a manufacturing centre is valuable everywhere else where people congregate; and it is not too much to hope that in a few years more a representative Art collection may be

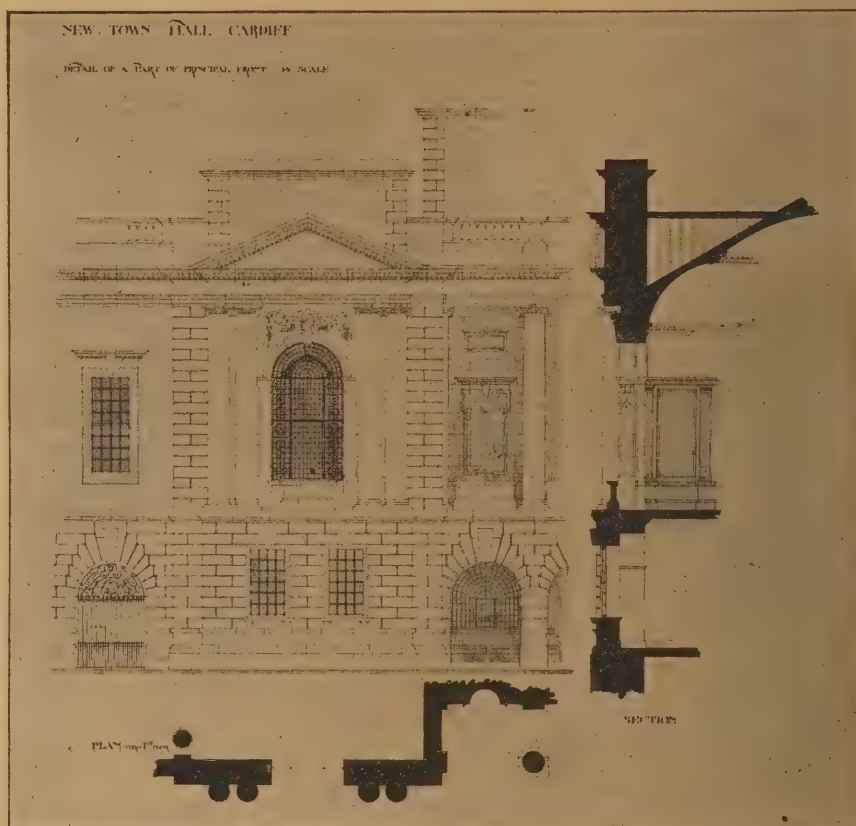
regarded as no less important for a local community than a public library or a board school.

ONE of the greatest achievements in Decorative Art which can be recorded during the past year is the completion by Sir W. B. Richmond of his mosaics in the choir of St. Paul's Cathedral. This first great section of the permanent adornment of the building was finished in the spring, and, as a recognition of the importance of his work, the artist received, at the time of the Jubilee, the honour of knighthood. The success of his efforts to produce a scheme of decoration worthy of the cathedral has aroused a very general desire that he may be enabled to extend his labours to other parts of the building, and to carry to completion what he has excellently begun. Efforts are accordingly being made to raise funds sufficient to meet the cost of further decoration in the nave, transepts, and dome.

THE walls of Paris, constructed in 1840, having long ceased to be of any military utility, their demolition has been frequently

ment, £600 on heating and lighting, and £400 on choir stalls. The remainder will be apportioned as follows: Screen, £1500; sedilia and side-screen, £800; marble floor, £350; bishop's throne, £650; chapel fittings, £300; holy table, £100; and the canopied recumbent effigy of the late bishop, which is to be placed in the enlarged choir, £2500. To these must be added the cost of the memorial window in the new choir, which is to be specially subscribed for by children.

A RECENT number of the Athenæum contains a protest against the proposed alterations at Wakefield Cathedral. "Unless a timely protest is made, a very foolish piece of church tinkering," we are told, "is likely to be perpetrated. The cathedral church of Wakefield is the ancient parish church, a large, rather plain building, chiefly of the fifteenth century and later, but with nearly eight centuries of history in its walls. In the sixties and seventies it underwent 'restoration' at the hands of Sir Gilbert Scott, and chiefly through the vigilance of the late Mr. James Fowler and a few of his friends, it lost less in the



CARDIFF COMPETITION. THIRD PREMIATED DRAWINGS BY MESSRS. COOKSEY AND COX.

advocated. General Billot, Minister of War, has now submitted to the Chamber a bill for the demolition of the northern and western portion between Pantin and Point du Jour, and for the erection of a short wall, 900ft. long, further out. The old site would be sold, the estimated value being 700,000,000f., and 4,000,000f. would be devoted to the new wall, while the remainder would be expended in artillery. The Budget Committee have resolved on asking the Ministers of War and Finance for details of the scheme, and the municipality advocates the prohibition of the erection of factories on the site to be sold.

A SUM of about £2000 has been either received or promised towards the fund which is being raised for the enlargement of Wakefield Church, and for other purposes, in memory of the late bishop, Dr. Walsham How. From a report which was presented to the committee by the late Mr. J. L. Pearson, R.A., it seems that as much as £20,700 will be required, of which £13,500 is to be spent on the work of enlarge-

operation than most have done. There are some important remains of old furniture, and what Scott put in is as good of its kind and suitable to the place. Some churchwardens' additions of poor character, but relatively not important, have been put in since, and when the church was made cathedral a trumpery throne was set up. The windows have been filled with painted glass, some of which is bad, but more good, and the good has been designed on a regular scheme, which, if completed by the removal of the bad windows and the substitution of others according to the prevailing treatment, would make the church, as to its glass, one of the best for its size in England. Last year a well-intended, but feebly designed, reredos was set up, which has, at least, the merit of covering a part—unfortunately only a small part—of one of the bad windows. The church is an excellent working parish church. Its architectural condition is better than that of most town churches now, and with a little judicious pruning and some improvements in its fittings, it might be made better still."

HOUSEBREAKERS are now taking down the Church of St. Michael, Wood Street. It has transpired during the demolition of the tower that much of it belonged to the former church, which was destroyed during the great fire of London. Wren made use of a good many of the turrets which fortunately were left standing, and by that means was able to apply much of the sums voted for rebuilding purposes to internal decorations.

THERE is now scarcely a district in Greater London, north, south, east, or west, in which one cannot find an excellent theatre. The most recent addition to the already lengthy list is the New Alexandra Theatre, Stoke Newington, opened last week. It is a handsome and commodious building. The theatre has been built close to Dalston Junction, on the North London Railway, in the midst of a thickly-populated district. It stands on a capital site in the Stoke Newington-road, and the architect, Mr. Frank Matcham, has made excellent use of the opportunity afforded him. He has produced for Mr. Purcell a theatre which for suitability of design, convenience of arrangement, and beauty of ornamentation, is not surpassed by any of the numerous theatres that have been erected in the metropolis during the past few years. Externally the style of Architecture is a bold Italian, the work being executed in a dark red-brick, with stone ornamentation. The two ends are carried up with pediments filled with rich carving, under which is a deep cornice with entablature, bearing the name, "Alexandra Theatre and Opera House." In the centre of the building the elevation is somewhat lower, and is divided by columns between the windows, and having a large stone oriel window projecting from the crush-room, the whole being crowned at the top with balusters separated by pedestals containing flambeaux. But, however handsome the externals of a theatre may be, it is the comfort of the interior which most appeals to the playgoer. In this vital respect the Alexandra will satisfy the most exigent patron of the drama. The vestibule has a floor of vitreous mosaic, and the walls and staircase are executed in a very fine and highly-polished red marble.

The stairs lead directly to a large and tastefully-furnished crush room overhead, and this communicates directly with a wide corridor leading to the boxes, dress circle, and saloons. There are three entrances to the circle from the corridors, so that ample accommodation is provided. The orchestra stalls are reached by a few steps from the vestibule, and the pit, which is very commodious, and has perfect sight-lines from any position, is almost on a level with the street. The theatre has two tiers. By a convenient arrangement, the upper circle is raised at the back of the dress circle, forming the roof of the corridor, and the gallery is over the dress and upper circles. The decorations are in rich Elizabethan style, finished in cream and gold on a light copper bronze ground, with Art panels inserted on a blue ground, the whole giving a very pleasing and graceful effect. All the upholstery is in a rich dark-red velvet, which, with the strawberry and pink valences and curtains to the private boxes and stage openings, gives the interior a very cosy and agreeable appearance. There is a double installation of electric light in every part of the house, so as to prevent any risk of failure of the illumination, and the whole building, including the dressing rooms, is heated by hot-water pipes.

How to get out of a theatre is sometimes an even more urgent question than how to get in, and the architect has seen that there shall not be any difficulty in this direction. The practically isolated situation rendered this a comparatively easy task, and the whole audience of some three thousand persons, which is the estimated capacity of the building, could make their exits in a couple of minutes. But, apart from the excellence of the exits, the theatre is as fireproof as skill and forethought can make it. The auditorium is cut off from the stage by an iron curtain, the corridors and passages are provided with iron

doors, and hydrants are fitted everywhere, so that the risk has been reduced to a minimum.

ALTHOUGH there is a great deal to be said in favour of the contention, advanced by Sir William Richmond at a recent conference of the Clergy and Artists' Association, that what is known as religious Art ought to be freed from conventionality, and made more intelligible to modern people, it is questionable (says the Globe) whether the sort of realism he suggests would quite fit in with the surroundings usually assigned to church decorations. No one could dispute the suitability of instances of contemporary heroism for permanent commemoration, but whether the present-day public would accept the human-nature point of view that Sir William advocates is extremely doubtful. For one thing, tradition and association are omnipotent in the formation of what we call by courtesy the popular taste in Art; and, for another, such materials as stained glass or mosaic, which are generally used in the adornment of churches, do not lend themselves well to realism. It would be difficult to make decorations of this type convincing in these common-place days, when people concern themselves only with what is before them, and lack the imagination to appreciate subtle suggestions.

BUT if what may be called commemorative decorations were once freed from the necessity of being also religious pictures, there would be a much wider scope for the artist. In our churches it would be difficult to oust the accustomed saints and martyrs, and to substitute the heroic self-sacrifice of the Margate boatmen as a subject for illustration; but there is no reason whatever why such modern instances of devotion to the needs of humanity should not be pictorially recorded in our other public buildings. There are acres of wall-space available at the present moment for permanent pictures, and there are scores of artists who could be depended upon to cover this wall-space with thoroughly acceptable work. What is wanted is a reasonable amount of public spirit among our wealthier citizens all over the country. If they would supply the ways and means, it would not be long before every town of importance could show some artistic tribute to the courage and self-sacrifice of its greatest men.

PARLIAMENT is to be asked to give its sanction during the ensuing Session to a Bill, which has just been deposited, by which it is proposed to extend the Victoria Embankment to Lambeth Bridge, with powers to reconstruct a good deal of the adjoining neighbourhood. The works to be authorised by the Bill are:—A new street, 90ft. wide, commencing at or near the Victoria Tower of the Houses of Parliament and terminating in the Horseferry Road at a point 70 yards, or thereabouts, to the westward of the western end of Lambeth Bridge. A new street, 60ft. wide, commencing at the eastern end of Great Peter Street, Westminster, at a point opposite the north-eastern corner of the Gas Light and Coke Company's premises and terminating by a junction with street No. 1 at a point 250 yards, or thereabouts, north of Horseferry Road. A new street, 50ft. wide, commencing by a junction with street No. 2 at a point 170 yards, or thereabouts, east of the commencement thereof and terminating by a junction with Horseferry Road at a point 150 yards, or thereabouts, from the south-east corner of the property of the Gas Light and Coke Company.

A NEW STREET, 40ft. wide, commencing by a junction with street No. 1, described in the foregoing paragraph, at the south-western corner of the Victoria Tower Gardens, adjoining the Houses of Parliament, and terminating at the commencement of the embankment hereinafter described. A widening of Marsham Street on the eastern side from the eastern end of Great Peter Street to Horseferry Road. An embankment or river wall, with a roadway 40ft. wide along the foreshore of the Thames, commencing at or near the south-eastern corner of the Victoria Tower gardens, adjoining the Houses of Parliament,

and terminating at the western end of Lambeth Bridge. The Company propose to take power to stop up and discontinue for public use a number of streets and places, or some part or parts of these, in the vicinity. The capital proposed is one million, with borrowing powers. There are restrictions on displacing persons of the labouring class, and the Company may agree with the London County Council and the Vestry of the United Parish of St. Margaret and St. John, Westminster, or either of them, with respect to the construction and maintenance of certain of the proposed works, it being provided that if it be so agreed the Council shall make the proposed embankment, in which case all the powers to be conferred on the Company for making the embankment shall be transferred to and become vested in the Council.

THE General Powers Bill of the London County Council, to be considered in the next session of Parliament, contains estimates as to the amount which the Council will require to expend out of borrowed money, or money raised by the creation and issue of stock for the purposes of the Act, these estimates being as follows:—For the construction of a new street in continuation of Roehampton Street, Westminster, £5700; a widening of York Road (Battersea and Wandsworth), £87,150; a widening of the Albert Embankment (Vauxhall), £37,100; reconstruction of Rosemary Branch Bridge over the Regent's Canal, £5800, and for other purposes of the Act, including a site for the purpose of a fire brigade station at Streatham, £1200; total £137,950. The local authorities are to contribute towards the cost of the short new street in Westminster, of the widening of York Road, the reconstruction of the Rosemary Branch Bridge, and also towards the purchase of lands for an addition to Ravenscourt Park, Hammersmith, and towards the purchase of lands lying between Putney Bridge Road and the River Thames, for an open space or recreation ground, the contribution of the Wandsworth District Board towards this last purchase being fixed at £10,000. The Bill also provides for the removal of certain gates, bars, and other street obstructions in Camberwell and other parts of London.

ENCOURAGED by the London County Council, the Hackney local authorities have decided to effect a very necessary improvement at Goldsmith Row, and the reconstruction of the "Cat and Mutton" Bridge over the Regent's Canal. The total cost of the works, including a bridge 50ft. wide, will be £67,450, and the amount to be raised by the localities to be benefited is £22,494. The Hackney Vestry at first agreed to contribute £2000, but, after some correspondence on the subject, the matter has been reconsidered, and now Hackney (although the improvement will only indirectly affect the parish) has agreed to raise its contribution to £5000.

THE Antwerp Communal Council has rejected by twenty votes to seventeen the Government project, better known as the Van den Broeck, from the name of its chief supporter, for the extension of the port of Antwerp. Under this scheme it is proposed to shorten the course of the Scheldt by cutting through the bend situated seawards immediately to the north of the city, and by utilising this artificially formed section of the river for constructing docks and quays. The objections raised to this scheme are its costliness, estimated at £4,000,000 sterling, of which Antwerp would be called upon to pay a third; its difficulty of execution; the interruption of traffic during the period of construction, and the belief expressed by the burgomaster that the Government are concealing a plan for extensive military operations. The Council ultimately adopted Royer's scheme, which compromises the matter by utilising the bend of the Scheldt for docks, but leaves the natural course of the river untouched. It was also unanimously resolved to recommend the demolition of the entire fortifications surrounding the city. What effect these

resolutions may have on the action of the Government can only be matter of conjecture.

PRACTICAL training, such as can be at once turned to profitable account, is given in art and science at the Goldsmiths' Institute, New Cross. The educational work carried on under the great City Company's fostering care is of an eminently useful character, while the fees are merely nominal, the object being to attract the industrial classes of the community. There are some 400 or 500 art students who are engaged upon designs of wall-paper and for silver and other metal ornaments, and so apt are some of these learners that they earn considerable sums of money in the course of the year. During three weeks one young lady made no less than £30, while a number clear upwards of £100 a year, a ready market being found for all work showing originality of design or cleverness in execution. Students come from every part of the country to the Institute, commenced and carried on by the Goldsmiths' Company, and so far famed is its teaching that the Japanese Government has at the public cost sent over a young man to study, within its walls, the Art of designing. Nearly every subject which can be of use in a vast commercial and industrial community is taught, and during the past session there were over 10,000 tickets issued, authorising the holders to be present at classes.

THE Collins' Theatre of Varieties at Islington was recently razed to the ground, and a luxurious establishment erected in its stead. The work has been performed under the personal direction of the architect, Mr. Ernest Woodrow, who has gone so far beyond the requirements of the London County Council for ensuring the safety of the public as to provide double exits in every part of the house, thus enabling the building to be emptied in an exceedingly short space of time. No matter where the spectators are seated they can obtain an uninterrupted view of the stage, inasmuch as there is but one column at the back of the auditorium, the tiers being carried on the modern cantilever system. The auditorium itself is decorated in the Louis Quatorze style, and by the aid of delicate colouring and rich draperies the new hall is probably among the prettiest in London. Nor has comfort been forgotten, seeing that the building is lighted by the new illuminant and heated by means of hot-water radiators. The ground floor is divided into fauteuils, stalls, and pit-stalls, and all are handsomely carpeted and supplied with tip-up seats upholstered in velvet plush.

THE large hall at South Kensington Museum, where the Raphael cartoons have found a home since their removal from Hampton Court in 1865, has lately presented a strange aspect, for it is crowded with four huge canvases, upon each of which a staff of artists are at work producing copies of the great master's designs. These oil paintings, slightly reduced in size from the originals, are intended for the Cathedral of Lima, Peru, which is now undergoing restoration at the united cost of the Church, the Government, and the public, so far as the latter can be induced to subscribe towards the good work. Mr. A. A. Calderon, of the St. John's Wood Art School, was recently at Lima, and suggested to the cathedral authorities there a scheme of decoration which they subsequently adopted. This scheme included the introduction of replicas of the famous cartoons, and Mr. Calderon and his students have now half finished the four pictures to which the commission at present is limited. The subjects chosen are: (1) The Death of Ananias; (2) The Miraculous Draught of Fishes; (3) Christ's Charge to Peter; and (4) The Beautiful Gate of the Temple. It may be remembered that the original cartoons, which are coloured in distemper upon strong paper, are nearly four centuries old. They were the designs from which the tapestries now in the Vatican were worked. The colours have naturally somewhat faded, and Mr. Calderon and his assistants have admirably succeeded in representing them on the canvas in their original brightness.

THE wealthy and public-spirited citizen has another great opportunity ready for him at the Tate Gallery. No apology is necessary for insisting upon the claims of this Institution, for it deserves well of everyone who has at heart the interests of British Art. As the funds available for increasing the collection there are extremely limited, practically the only way in which important additions can be made is by presentation or bequests; and if the new rooms which will be available within the next two years are to be filled with really representative works, a good deal of widespread generosity will be necessary. Of course, this generosity must be discreet, for the mission of the Tate Gallery is to show to future generations the great achievements of the British school, and not to glorify mediocrity; but the collector who can temper liberality with discretion will find ample occupation at Millbank in supplying deficiencies which are now evident enough.

THE Metropolitan Railway Company has deposited its Bill for next session in the Private Bill Office of the House of Commons. One of its six parts takes power for the Company to work by electricity the whole of the traffic on the Company's railway, or on any part of it, including the lines owned jointly by them and the Metropolitan District Railway Company. For this purpose it is sought to erect a generating station on land adjoining the Edgware Road Station, and power is also sought to enter into agreements with the Metropolitan District Railway Company with reference to the working of both systems by electrical power.

THE ruins of the "Cour des Comptes" have remained on the Quai d'Orsay for nearly twenty-seven years as a memorial of the ravages caused by the Commune. During that time trees have found root in the debris and made the place quite a picturesque object. The place is now to be occupied by a railway station, and the carcass has been sold to the demolisher. It would appear that the beautiful frescoes of Chassériau, which were one of its chief glories, have survived in part not only the vicissitudes of fire, but of weather, and are in parts almost intact. A strong appeal has been made to Government to rescue these historical works which they had handed over to the pickaxe of the destroyer.

THE sale of the Douglas collection of old stained glass from the Château of Langenstein realised for the fifty-two lots £9000. The principal lot of three windows, from designs attributed to Holbein, was purchased by the Museum at Bâle for £1500, which acquired most of the other important pieces. A votive window, dated 1528, was acquired by certain amateurs for £1000 and presented by them to the museum at Cologne.

A SERIOUS difficulty has arisen in connection with a new post-office at Portadown. The building has been erected on a marsh on the banks of the Bann. After the officials removed to the new office the sanitary arrangements were found to be very defective, and it has at length been discovered that it is impossible to drain the premises. The result is that a dangerous nuisance has accumulated, which is very injurious to the health of the officials, and objectionable to the residents in the locality. The Board of Public Works, under whose supervision the building was erected, ignored the Town Commissioners, and refused to submit the plans for their inspection. Should the commissioners insist, as they are bound to do, on the provisions of the Sanitary and Public Health Acts being complied with, it is more than probable that another post-office will have to be erected.

AFTER various experiments with the object of improving the lighting of the National Liberal Club, it has been arranged to take down the whole of the wires in connection with the electric installation, and to replace them with new. This will mean an expenditure of something like £2000. Another improvement in contemplation is the covering in

of the terrace overlooking the Embankment Gardens, so that it can be used for dining purposes all the year round.

MR. GEORGE BYRON GORDON, the explorer, in his account of recent discoveries at Copan, says: "The most extraordinary feature that our excavations have yet brought to light is the hieroglyphic stairway. Facing the plaza at the southern end, it occupied a central position on the western side of the high pyramidal elevation that forms the northern wing of the main structure. Even in the sad state of ruin in which we behold it now, it affords a magnificent spectacle. What must it have been in the days when it was entire, and reached from the floor of the plaza to the entrance of the temple that stood on the height 100ft. above? When discovered, in 1894, this stairway was completely buried beneath the debris fallen from the temple, of which not one stone remained upon another. The upper part of the stairway itself had also been thrown from its place as if by an earthquake, and lay strewn upon the lower portion. When, at length, after months of labour, on which fifty to one hundred men were employed, the fallen material was cleared away, an acre of ground was covered with broken sculptures, removed during the progress of the work, and the lower steps were found unharmed. In the centre of the stairway, at the base, is a throne or pedestal rising to the fifth step, and projecting 8ft. in front. The design upon its face is rich in sculpture and delicate in detail. It is made up in part of handsome faces, masks, death's-heads, and scrolls, beautifully carved, and disposed with perfect symmetry, but the ensemble is perfectly unintelligible. On the face of each step in the stairway is a row of hieroglyphics, carved in medium relief, running the entire length. At intervals in the ascent the centre is occupied by a human figure of noble and commanding appearance, arrayed in splendid attire, seated on the steps. The upper parts of all these figures were broken away, but the pieces of several were recovered and restored. On each side was a solid balustrade 2ft. thick. The upper parts of these were also broken away, but by careful study and comparison, enough was recovered to enable us to make out the curious and complicated design. Portrait-like busts issuing from the jaws of grotesque monsters, standing out upon these balustrades, and repeated at regular intervals, formed their principal adornment."

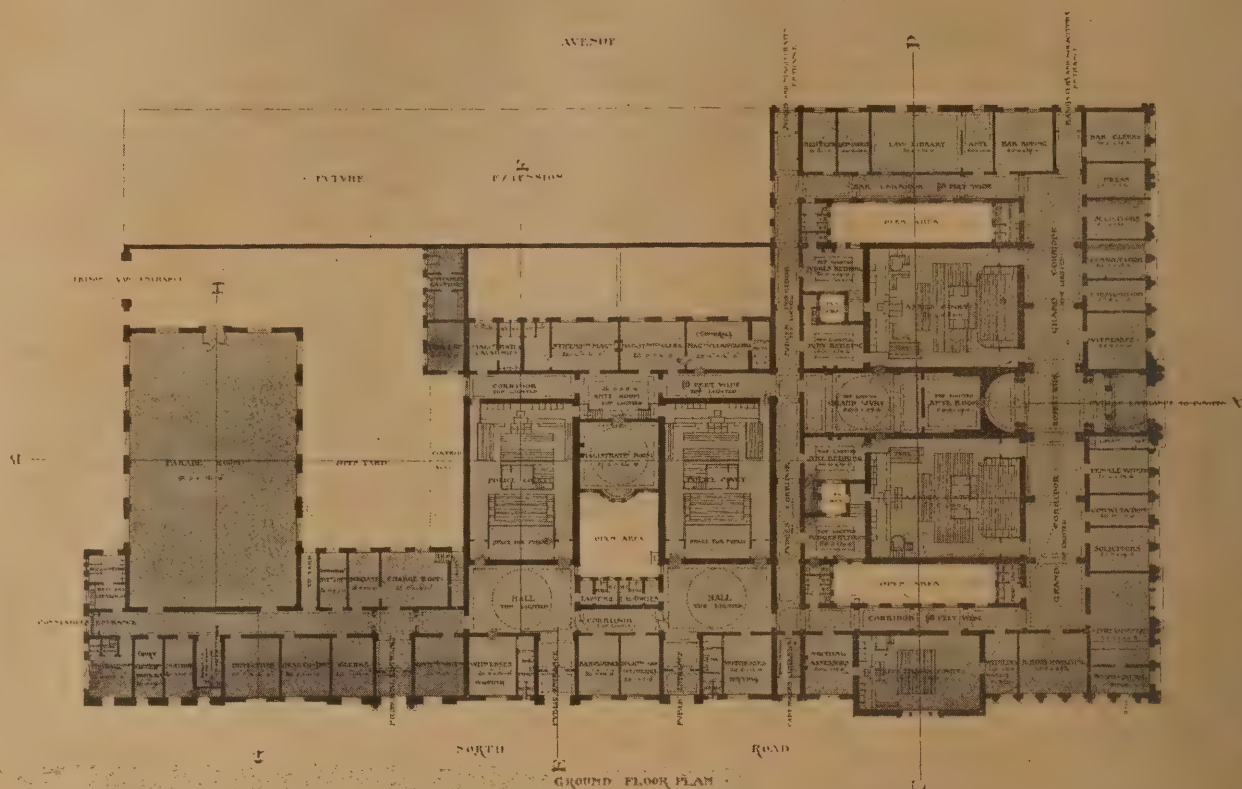
PARISIAN antiquarians are up in arms against a project which has been put forward for constructing a short railway between the Mont St. Michel and the mainland of Normandy. The mount is an isolated rock 160ft. high, standing at the end of the bay of St. Michel, and connected with the mainland by a causeway of sand, which is submerged at high tide. It is feared that, if the proposed improvement is carried out, the splendid mediæval abbey and fortifications on the rock will suffer irretrievably. The Minister of Fine Arts, however, has no official knowledge of the project, into which a local inquiry has been opened.

A BILL "for incorporating the City and Brixton Railway Company, and for empowering them to construct an underground railway from the City and South London Railway to Brixton Hill," has been deposited at the Private Bill Office. The proposed railway, which will be nearly 3½ miles in length, will start by a junction with the City and South London line under the High Street, Borough, and will terminate under Brixton Hill. It is proposed to widen the City and South London line near London Bridge Station, and also to construct a subway connecting with the Kennington Oval Station of that line. The time sought for the completion of the works is five years.

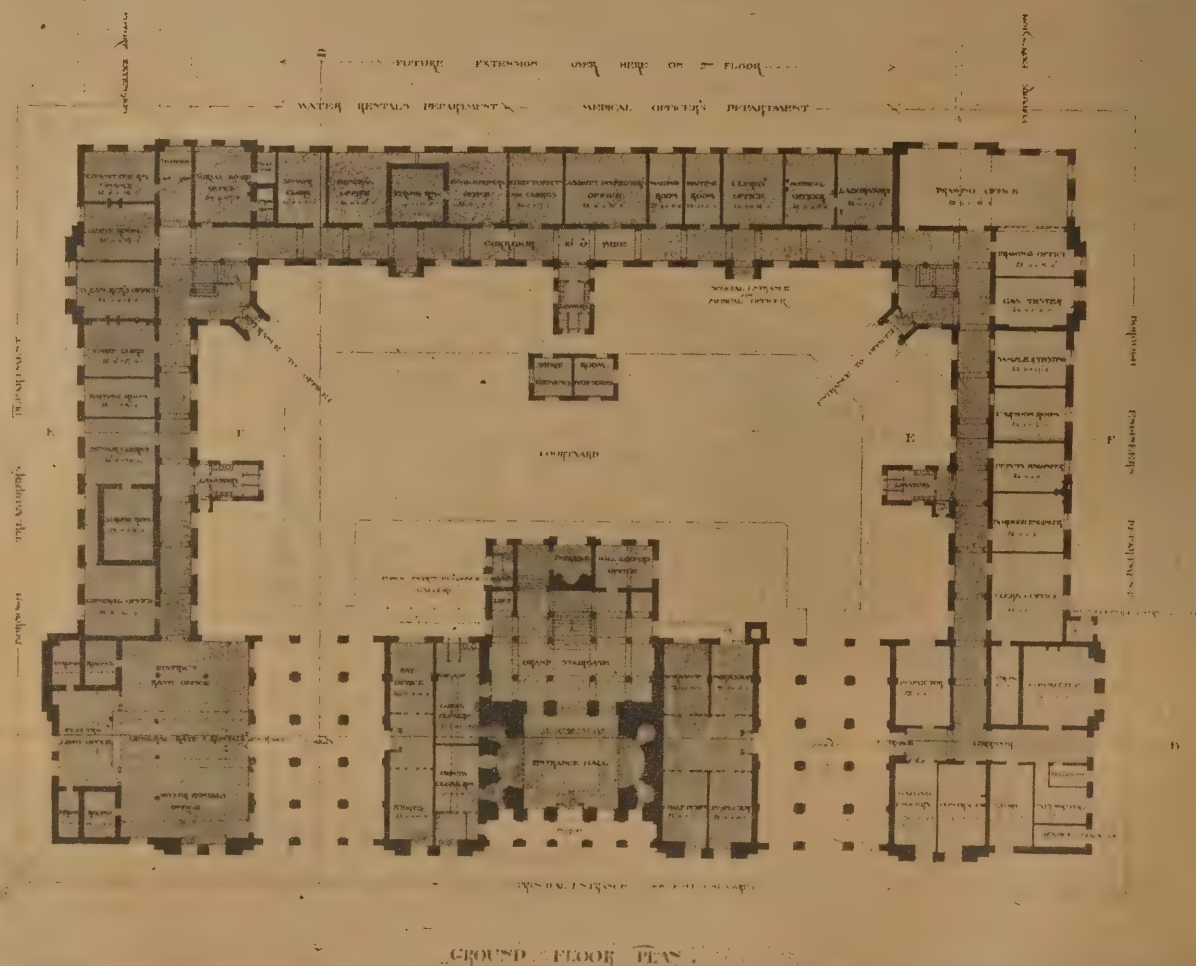
SIR ARTHUR BLOMFIELD, the assessor in the Southend Church Competition, has awarded the first place to the design of Messrs. Nicholson and Corlette, 28, Theobald's Road, Gray's Inn Road, London, who are to proceed with the work as soon as possible.

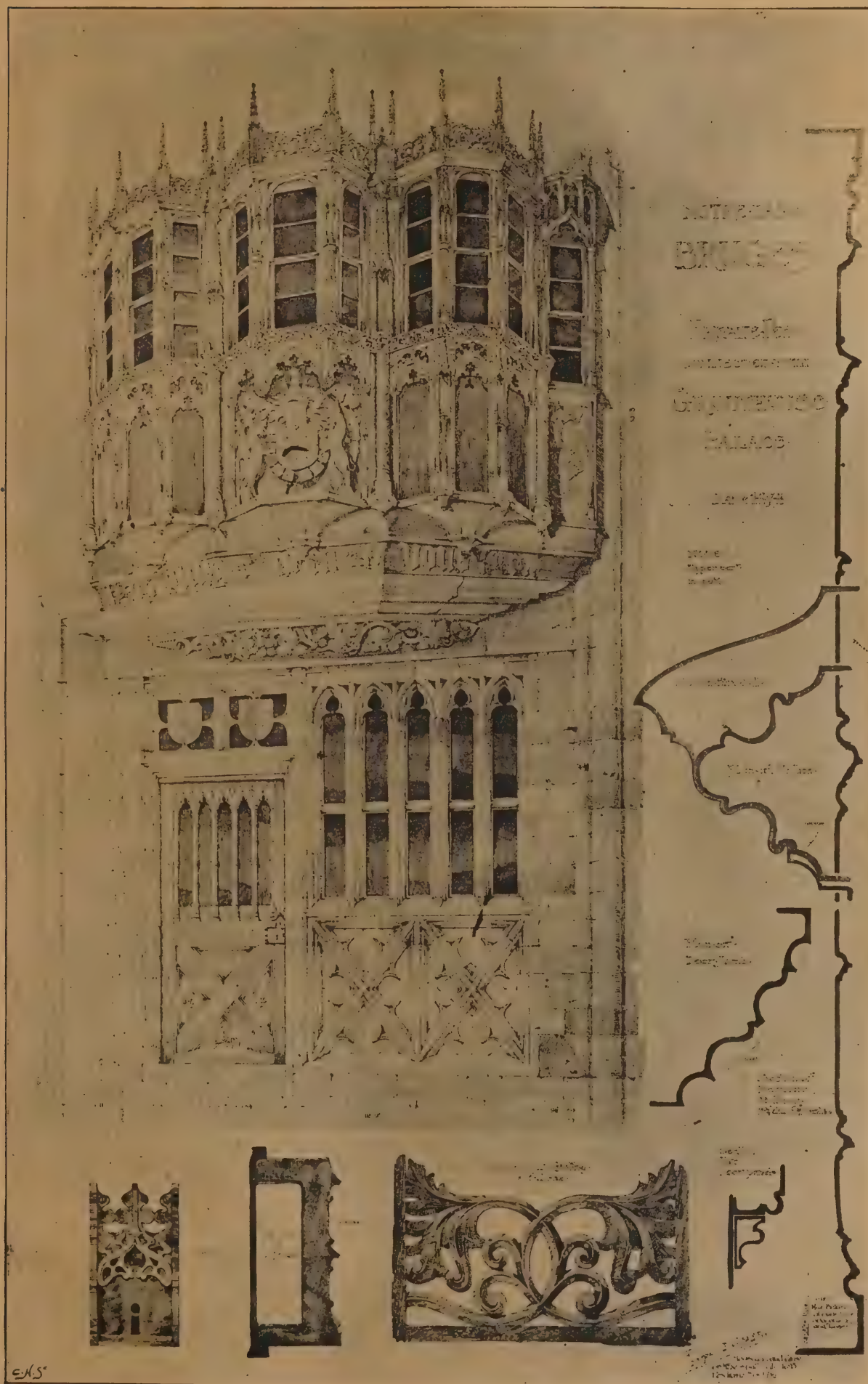
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NEW LAW COURTS ETC. CARDIFF.



NEW TOWN HALL CARDIFF.





PALACE PEW AT NOTRE DAME, BRUGES. FROM A DRAWING BY JAMES A. SWAN.

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A YEAR'S BUILDING OPERATIONS.

IN MANCHESTER.

THERE has been a large amount of building in and around Manchester during 1897. Warehouses and shops to take the place of former structures of the kind which have been pulled down have been erected in considerable numbers, and the tendency to employ iron wherever possible, and, to a certain extent, glass, has made further progress. The building of cottage property on a large scale has continued, but it has been less profitable to those engaged in it than could have been desired. There is a growing tendency towards specialism observable in the letting and accepting of contracts, it being often customary to give one firm the brickwork only, another the carpentering, and a third the decorative work. The demand for bricks of the Ruabon type, which has for several years been active on account of the superiority of this material in withstanding the taint of a smoky atmosphere, has shown no sign of abatement; but the production of bricks of this class in other localities—notably in Accrington—has obviated any scarcity in the supply such as has been experienced in former periods.

IN LEEDS.

The building trade of Leeds and district has been brisker during the past twelve months than for many years. The supply of materials and labour has fallen considerably short of the demand. Owing to the stoppage of work for about twenty-two weeks in 1896, occasioned by the bricklayers' and labourers' strike, business had not regained its normal condition at the beginning of last year—a fact which, combined with the great increase of building work at the same period, placed serious obstacles in the way of contractors making satisfactory progress with the works under their charge. Employers have experienced much difficulty in obtaining a sufficient number of good skilled workmen to keep pace with the contracts offered to them, and in some instances they have been compelled to decline contracts on account of the expense of and delay in obtaining labour and necessary materials. Brickmaking firms and stone quarry masters have failed to meet the large demands made upon them. The standard price of bricks has not been altered by any general combination of makers, though firms have been able to make their own special terms, and to sell to their best customers at advanced rates. The latter have readily agreed to the demand in the hope of securing a fair share of the limited output. The demand for fine clay goods and glazed bricks has also been good. The Leeds quarry owners have been unable to meet the demand for outside building dimension stone, and in numerous cases serious delay has resulted. Local quarries have become fewer in number, and the average output much reduced. This naturally

HAMPERS THE PROGRESS OF BUILDINGS for which stone is freely employed, and may possibly tend to induce architects and builders to seek stone in other districts. On the other hand, the scarcity of skilled masons' labour, and the serious cost of stone and carriage from a distance, may tempt them to use moulded brickwork, terra-cotta, granite, or similar facings more generally than at present. Some of these materials are now being considerably employed in many of the important buildings in the centre of the city. There have been no strikes during the year, but minor differences as to working regulations seem to be a frequent source of complaint. A case of this kind has happened within the last few weeks. A certain firm having allowed a foreman bricklayer in their employ to set a few dressed stones in a building under his supervision, all the masons in their employ were drawn out without notice, and a fine of £15 imposed by the Union upon the firm. The Master Builders' Association took the matter up, and deputations met and discussed the various points of difference, with the result that the men re-

turned to work. For a space of three weeks, however, the firm in question had to suffer a complete cessation of masons' work on hand, causing great inconvenience, which was especially felt by customers. It is to be hoped that such an extreme course may not again be resorted to in regard to comparatively small matters of difference, but that the parties may meet and consider in a reasonable way the points at issue between them. The Corporation have shown considerable enterprise by the vigorous way in which they have taken in hand the improvement of many important streets. Great progress has been made during the year; some of the surplus lands have been disposed of, and much more is expected to be done during the next twelve months. The Leeds Estate Company are making rapid progress with the development of their sites in Briggate and Vicar Lane, and the present general favourable circumstances would seem to indicate a large and busy trade for the builders of Leeds this year.

IN HULL.

The building trade in Hull during the past year has been exceedingly brisk. Several mills, principally for the flour trade, have been built on the east bank of the River Hull, and judging by those already erected, and others contemplated, Hull will soon be one of the largest building centres in the kingdom. A very large number of houses have been built in both East and West Hull, but the only large building erected of importance, apart from the mills, is the new Palace Theatre, on the Anlaby Road, at a cost of £50,000.

IN SHEFFIELD.

In no previous year has the Sheffield builders been busier than in 1897. In every part of the suburbs dozens of new houses have made their appearance, and in the centre of the city, too, several new and extensive premises have been erected. The average number of newly-erected houses certified as fit for human habitation each twelve months has for the past few years in Sheffield been about 1000, but last year no less than 1426 houses have been passed by the authorities.

THE NUMBER OF PLANS

submitted for approval for houses, salesshops and property of every description has been 1429, and the number of houses sanctioned in the plans has been 2320, while 480 other proposed buildings have been approved. In addition to these figures we may further state that 50 more houses have been completed, but for various reasons have not been certified, and the total number of other buildings completed during the year has been 218. Comparing these figures with those of previous years it is found that the builders and contractors in the town have been unusually busy. Under these circumstances, therefore, it naturally follows that the cost of private house building has been increased, but notwithstanding this, new houses have sprung up all over the outskirts of the city. The district in which, of late, most of the new houses have been erected is perhaps Abbeydale, and here almost every available yard of land has been utilised for building purposes. Meersbrook, though not coming within the city boundaries, has

GREATLY INCREASED IN SIZE

of late. After these two districts come Firvale, Stanforth Road, Darnall, and Hunter's Bar. Coming more into the centre of the town, new buildings are making their appearance almost as rapidly as in the suburbs. In Pinstone Street the principal new block which has been finished during the year is that of the Prudential Insurance Company. The block has done much to increase the architectural beauty of the thoroughfare. The Commercial Union Buildings Company is also erecting somewhat extensive premises at the corner of Pinstone Street and Charles Street. These adjoin those of the Prudential Company, and when finished will about complete the building operations from the Moorhead to St. Paul's. The School Board has completed one or two Board schools, and the guardians have opened a block of cottage homes.

GREAT ART WORKERS OF THE CENTURIES.

ANDRÉ CHARLES BOULE.—ARTIST-IN-LAYER.

THE devices by means of which artistic and decorative effects are produced are very varied. Amongst these, one of the most obvious must have been the juxtaposition of portions of variously coloured material in such a manner as to produce an ornamental design applicable to the decoration of a more or less plane surface. Doubtless the initial form of this work was the large and rough idea of paving a palace or temple floor with a layer composed of square or some other geometrically shaped slabs of parti-coloured marbles or stones. Hence originated that species of pavement to which the term "tessellated" is applied, a method largely adopted by the Romans, and by them borrowed from the Greeks. There are now extant remains of this "mosaic work" of Greek manufacture, and we know that the Latin term for the earliest Roman examples of it, *lithostrotum*, was derived from the Greek word *λιθοστρωτον*, which declares plainly the Greek derivation. The Romans had several forms of this mosaic pavement, all formed by placing small cubes of stone, marble, terra-cotta, pottery, or even glass, termed *tesserae*, together, so as to form more or less intricate designs. A specimen of the more pictorial style of inlay of this kind was found at Cirencester some time since, representing a head of the goddess Flora, which shows much colour. The flowers are principally of a bright ruby red, produced by *tesserae* of glass. The leaves and stems are of a dull olive green. One or two white flowers are introduced in the dark chocolate-coloured hair. The swallow on Flora's shoulder is simply black and white with one line of grey.

From this mosaic work there was a connecting link between it and the wood inlay of Boule, and this work was termed *intarsiatura*. The Art itself sprang up in Italy during the middle ages. It consists in forming decorative designs by the junction of small cubes of different coloured woods. At first only the natural colours of the different timbers were depended upon, but the later intarsiaturalists stained their woods when necessary. Some of these wood pictures display the utmost finish and delicacy, and are models of patient workmanship. At first nothing beyond decorative designs were attempted, but, later on, the intarsiaturalists, like the Roman mosaicists, aspired to become pictorial artists, and produced veritable pictures. Many of these productions outliving the centuries, frail as they are, are still extant in Italy. Some very fine examples are to be found in the Church of Santa Maria-in-Organo in Verona, which were executed by Fra Giovanni da Verona, a white Benedictine of the Brothers of Monte Oliveto.

Fra Giovanni da Verona died in 1490. His portrait, by Francesco Morone, in the quaint white hood of his order, hangs in the sacristy. Quitting, however, Italy, we find that the Italian school of *intarsiatura* workers were followed into France by a school of inlayers in wood. As in decorative Art and Architecture, we know that the French Renaissance was the offspring of that of Italy, and that Francis I. induced many Italian artists and *ouvriers* to come to his dominions, notably the great Leonardo da Vinci and the celebrated Benvenuto Cellini. The men of the French school of inlayers did not attempt to produce wall and other pictures built up of minute pieces of wood like the Italians, but they covered the surface of furniture with ornamental woods cut into very thin veneers. Very often they formed designs of different coloured woods, in this manner quite equal to *intarsiatura*, and more readily produced. If necessary the wood was stained, to produce tints not found in Nature, and shadows were produced by holding hot irons or heated sand over a piece of light coloured wood until the heat darkened it. These thin films of wood were glued to the table or other article, precisely as a modern English cabinet-maker

proceeds in veneering. The French term for this Art of inlay is "marquetry," and numerous artists of the greatest excellence and skill practised the Art as applied to the decoration of furniture, from the fifteenth century onwards. The layer of ornamental wood which they applied to any surface, for example, a table top, was very thin—in fact, what we now call "veneer," and applied with glue. Many persons who have not given the subject much consideration are both struck and puzzled on examining a choice example of marquetry. Here is perhaps a large surface of some light colour, such as satinwood, on which is inlaid a most elaborate and intricate pattern in some darker coloured wood. The lines of the design are of marvellous delicacy, yet so carefully are they cut, and so neatly inserted in the ground, that the lines of juncture are almost imperceptible. The manner in which these patterns of inlay are produced may be popularly explained by supposing a very simple marquetry design, say a black star on a light ground, is required to be produced. Two pieces of veneer, one of light wood and one of ebony, are taken and glued together with a piece of paper intervening. A small hole is then drilled somewhere, and the blade of a very fine buhl saw inserted. Next the lines of the design are very carefully sawn round. The glue is then softened and the layers of veneer taken apart. The workman has then a light coloured ground and a black star, and also a black ground and a white star. Thus, when these veneers are properly glued on to the surface intended to receive them, a couple of marquetry designs are secured.

The merit of André Charles Boule as an inlayer is that he enlarged the artistic sphere of the Art by calling in the aid of thin brass as an ornamental material, and produced innumerable designs of the highest merit, composed of lines of brass, inlaid in a ground of wood, generally of a dark colour. This description of ornament is generally termed boule (or buhl) work, in honour of its inventor, the second spelling being that generally, and incorrectly, adopted in England.

André Charles Boule was born at Paris in 1642, and died in the year 1732. He elevated the Art of inlaying—which the French term "marquetry" or "ebenistry"—to the rank of a fine Art, and acquired a great reputation for his furniture, enriched with ornamentation in bronze, in mosaic, and with decorations in gold, copper, ivory, and tortoiseshell, all of which inlaid specimens are known as buhl work at the present time. By his happy selection of the woods of India and Brazil, which he arranged with the utmost skill, and by his employment of ivory and copper, which he cut like a true artist, he was able to imitate in his furniture all kinds of animals, flowers, and fruits, though his work is difficult of pictorial illustration. He even went so far as to represent historical subjects, as landscapes, hunting scenes, and even battle pieces. Louis XIV., who was sufficiently appreciative to comprehend Boule's genius, granted him apartments in the Palace, and named him "Engraver of the Royal Seals." Besides this last appointment, Boule received, in the *brevet* of appointments delivered to him, the titles of "architect, painter, sculptor in mosaic, artist-inlayer, chiseller, marquetist, and inventor of figures." In fact, he did actually unite, more or less, all these qualifications in his own person. This enabled him to produce in the highest degree of artistic perfection the furniture, clocks, wardrobes, *escritoires* writing desks, &c., which issued from his workshops. Boule worked for Versailles and the other royal residences, and received numerous commissions from several foreign sovereigns. It is said that upon one occasion, when the *ébéniste* (as Boule was generally termed, from his frequent use of ebony for the groundwork of his designs in ivory, brass, and mother-of-pearl) was waiting upon Louis Quatorze at the palace, the King took him to a private cabinet to show Boule a very fine and beautiful specimen of ancient Roman mosaic, which had been acquired for him in Italy. It is well known that, although his intercourse with strangers was characterised by extreme hauteur, *le grand*

monarque, in the privacy of *la vie intime*, was a man of great geniality. "André, mon ami!" said the monarch, surveying the mosaic with rapture, "didst ever see a thing so perfect—such a consummate *chef d'œuvre*? Wouldst thou have believed that it had been possible for mortal man to have so deftly arranged countless morsels of stone and pottery as to make a picture so exquisite?"

"Yes, *monseigneur*," responded the artist, "I can very readily understand it. The man who made that mosaic was undoubtedly a cunning workman, and I would that he walked God's earth to-day that I might cross palms with him. I suppose you and the world generally would call him a genius. *Chut! la patience est la génie!* That man had an indomitable patience; so have I, your majesty's humble *ébéniste*. I work in wood rather than in marble, stone, and potsherds. If your majesty will permit me to make a slight sketch of this work, I will undertake in a few weeks to bring you a table, the wooden inlaid top of which shall be a perfect *fac-simile* of that mosaic."

And Boule kept his word.

At the South Kensington Museum are several fine specimens of Boule's work, belonging respectively to the Queen, the Duke of Buccleuch, and the Duke of Hamilton; and the late Sir Richard Wallace exhibited some fine specimens from the Hertford Collection at Bethnal Green in 1872.

It may here be observed that the earliest artist workers of the French Renaissance were very fond of interlaced strapwork ornaments. In earlier days—those of Henri Deux and the fair Diane de Poitiers—we find the strapwork patterns in that rare and precious porcelain known to collectors as Henri Deux ware, and on the sides of the splendidly bound volumes of Jean Grolier, Henry's minister, we find the same kind of interlacing patterns. It was not, however, generally popular in the reign of Louis XIV., and the specimens of Boule's work so treated must be considered simply as a survival or a copy of some earlier work.

There are several technical points about the marquetry which adorns the furniture made by Boule in the seventeenth century, and that constructed by his followers, Riesener and Daird, in the following century, worthy of note.

The former was an *intarsia*, or surface inlay of various materials, principally tortoise-shell, with brass and white metal, the surface of the latter being occasionally enamelled in various colours. This work was afterwards enhanced by the laying of metal beneath the tortoise-shell to add to its colours. The two manufactures are usually called "old" and "new" Boule.

The shell generally used was that of the marine tortoise, called *testudo imbricata*; or hawk's bill turtle, and was prepared by dipping into hot water and subjecting to various processes.

In obtaining the patterns of Boule work a couple of thicknesses of the materials to be used are cemented together with a sheet of paper interposed, another sheet of paper being glued on the outer surface, upon which the design is drawn. The lines of the latter are then carefully cut round with a Boule or fret-saw. Afterwards, by the application of heat, the glue which cemented the two layers of material was softened and the two slices separated. Of course, then the pattern cut out of one slice fitted into the groundwork of the other, so that one operation of the saw produced two copies of the design. Thus, if the design were a Grecian lyre, and the material satinwood and ebony, the artist would have a lyre in light coloured wood to inlay on a black ground, and an ebony lyre to insert on a ground of light coloured wood. In the original style of Boule work some considerable degree of use was also made of pearl and ivory.

Dye woods were (and are) used as far as they are available, and greens, blues, and some other tints are often stained in. M. Cremer, of Paris, used the staining process of M. Boucherie, said to impart a permanent colour to a great depth. Shading is produced by

darkening the wood at the desired spot by the application of heated sand. These designs are then carefully glued upon the level surface prepared to receive them in the same manner as ordinary veneers.

All lines necessary to the designs, as, for example, the veins of petals or leaves, are cut on the wood with a graver or other suitable incurving tool, and afterwards filled up with wood dust and fine glue, pressed well in.

Boule and his followers often produced increased effects by carefully disposing pieces of the same kind of wood so that the grain ran in different directions, the effect thus attained being particularly pleasing.

To the Art student, be he pictorial or otherwise, I would recommend an early study of the work of Boule, if it be only for the sake of acquiring a knowledge of the beauty of form as applied to furniture. W. N. B.

KEYSTONES.

THE Church of Holy Nativity, Knowle, has just been further embellished by the addition of a stained glass window.

MESSRS. PEARSON BROTHERS AND CAMPBELL, of 57A, Dale Street, Liverpool, inform us that henceforward their address will be 5, Castle Street, Liverpool.

THE Town Council of Louth has applied for the approval of the Local Government Board of the borrowing of £1300 for the erection of a technical school.

A RECUMBENT figure in marble of the late Bishop Harper has been recently placed in the cathedral at Christchurch, New Zealand. The figure has been sculptured by Mr. Williamson, of Esher.

THE London County Council is erecting in Rosebery Avenue, near to Clerkenwell Town Hall, a handsome suite of buildings for a gas meter testing station for the northern districts of London. The tender for the erection of the building was £4257.

A LARGE and enthusiastic meeting of the inhabitants of Workington has unanimously passed a resolution empowering the Corporation to contribute a sum not exceeding £150,000 towards the erection of a new deep water dock for Workington.

THE Cambridge Music Hall, Bishopsgate, which was burned down some time ago, has been rebuilt, and was reopened last week. The new building, which is in the Moorish style, has been furnished by Messrs. Maple and Co., and every up-to-date convenience and improvement has been adopted.

IT is stated that at a sale at Munich a Genevan thaler reached the extraordinary price of over £3000. It bears the date 1598, and there are only two others in existence. It is four times the usual thickness, and has the initials of Jean Gringelet, a celebrated medallist.

AT Eccleston Square Congregational Church, Belgrave Road, S.W., a memorial tablet to Dr. J. Hiles Hitchens, pastor for twenty-six years, has been unveiled. The tablet, which is a large piece of Gothic work, is in Caen stone, with marble panel and Devonshire marble columns, and has been executed by the Art Memorial Company.

THE West Yorkshire Provincial Grand Lodge of Freemasons are about to erect a new masonic hall in Leeds. Several plots of land have been inspected, and the committee have now chosen a central site in Great George Street and Rossington Street. An offer has been made for the land, but it has not yet been definitely accepted. After the completion of the negotiations, no time will be lost in the preparation of plans and in letting the various contracts.

A PLAN which has long been discussed is about to be realised at Budapest. The enormous four-storied house of Herr Anton Dreher—situated in the Hatvaner Utza, which leads to a railway station, and has just been widened 75ft.—is to be moved back into line with the new houses which have taken the place of the ugly old buildings that encumbered the street. Two Hungarian engineers have worked out the plans for moving the Dreher House with American screws.

Professional Items.

BEBINGTON.—The Victoria Hall recently erected has been opened. The building occupies an elevated site on the roadside entering the village, and, though carried out in a simple domestic style suitable to the surroundings, is enlivened with some marked features in the gables, and by the red tiling of the roofing. The lower portions of the outside walling is of rock-faced stone from the neighbouring quarries, the parts above the ground floor window sills being faced with pebble-dashing of a warm ochre tint. The principal gables are filled with an effective but inexpensive treatment of sgraffito work, carried out by Messrs. Goodall and Sons, of Liverpool. The design embraces the Royal Arms, and the rose, shamrock, and thistle, marking the building as a Jubilee memorial. The present accommodation provided consists of two classrooms for technical instruction, entrance hall, and the large hall, which latter affords accommodation for some 350 seats and stage. The walls internally are finished in red duresco with a frieze of buff, laid direct on the brick lining. The general contractor's work has been carried out by Messrs. Lee and Son from the designs of Mr. Charles Deacon, architect.

BRADFORD.—The buildings erected during the past twelve months have all been of a minor description, although there has been an increase in the number of them. The number of plans deposited for the erection of dwelling-houses was higher last year than in 1896, but those for warehouses and mills have slightly decreased. The total number of plans approved is 439, as against 399 for the previous twelve months.

BRISTOL.—A plan for new municipal buildings in Bristol has been submitted by Messrs. C. B. and S. J. Loxton, surveyors, and has, we understand, been laid before one of the Corporation committees. It is proposed to take in that portion of St. Augustine's Parade which lies between Denmark Street and Pipe Lane, running back to Orchard Street. The building would have a frontage to the New Centre of about 400ft., with an open space of about 300ft. from the end of Clare Street and Baldwin Street. The approximate cost of a building has been estimated at from £90,000 to £100,000. The purchase of the site, as estimated by the Land Steward in 1893, was about £150,000, together making the aggregate cost about £250,000.

CHELMSFORD.—The proposed alterations at the Great Eastern Railway Station include the superseding of the heavy projection on the up-side, intended for a shelter, by a light awning of modern construction. The booking-office will be improved, the adjacent parcels office enlarged, and alterations made in the lower portion of the premises, so as to throw more light into them. The platforms will not be lengthened, but they will have a uniform width of 14ft. 3in. A new staircase will be made for the down platform. Upon both platforms, up and down, there will be awnings of over 250ft. in length. Alterations will be made to the present buildings on the up platform, so as to provide accommodation for the station-master, ticket collectors, and porters; and a new block will be constructed between these buildings and the London end of the platform for the general waiting-rooms, &c. A new lift, worked by hydraulic or steam-power, will be provided at the Springfield end of the station, in place of the present one, which is the cause of a good deal of obstruction. The alterations are expected to be completed by next summer.

CROMER.—Those who were acquainted with the little, old-fashioned hostel named the Hotel de Paris, Cromer, will know it no more, as it has been replaced by a *fin de siècle* building of handsome proportions. The dining hall occupies entirely one end of the building, having six bay windows, all commanding good sea views.

The principal staircase starts out of the central hall and a part of the central hall is carried up two floors high, and a gallery formed round the opening, while light enters from the ceiling by coloured lead-glazed ceiling lights. On the upper floors are numerous suites of sitting and bedrooms connected by wide corridors, all of ample dimensions.

DUNDEE.—A window has been presented to St. Mary's Parish Church to commemorate the Diamond Jubilee of the Queen. It occupies the great east side of St. Mary's, is in keeping with the stately Architecture of the building, and in harmony with its character and purpose. The donors were fortunate in obtaining the co-operation of Sir Edward Burne-Jones and the late Mr. William Morris. The window has twelve divisions, and the subject which naturally suggested itself was that of the Twelve Apostles, with angelic figures in the traceried portions above. Eleven of the Apostles have been drawn by Sir Edward Burne-Jones, and the twelfth—St. Bartholomew—by Mr. William Morris. The glass of the window has been made at Messrs. Morris and Company's works at Merton Abbey, in Surrey.

ECCLESHALL.—An important and much-needed work—the restoration of the Eccleshall Parish Church tower—has been inaugurated. The architect, Mr. Basil Champneys, estimates the cost of the whole interior and exterior repair of the tower, including new parapet and pinnacles, new roof, floor, door, clock-faces, louvres, stonework, &c., at £856 10s. or thereabouts. Mr. Champneys proposes to remove only such stones as are radically unsound, so as to disturb as little as possible the ancient appearance of the tower. At a meeting of parishioners the following resolution was carried:—"That this meeting, being convinced that there is urgent need for the tower of the parish church to be thoroughly restored, hereby requests the churchwardens forthwith to follow up the steps that have been already taken for that purpose, and pledges itself to do its utmost in assisting them to raise the requisite funds."

EDINBURGH.—In our criticism of the designs submitted in connection with the Cardiff Town Hall and Law Courts Competition, a set of drawings under notice are attributed to Mr. Bran, of Croydon. The author of the drawings in question is Mr. William Bevan, of Edinburgh.

FERRABE.—The new Church of the Immaculate Conception at Ferrabene is now completed. Its imposing tower is also finished. The new church, which is decorated Gothic in style, consists of nave, with gallery at west end, chancel, north and south transepts, sacristies, and baptistry, and affords seating accommodation for about 700 persons. The interior of the church is very fine, the nave floors and also the floors of the chancel and transepts being laid with encaustic tiling of a beautiful pattern. The windows are filled with stained glass, rich in colouring and chaste in design. The roof is of open timber construction with panels and moulded ribs, finished with carved bosses at intersections, the effect being very pleasing. Externally the church presents a very fine effect, a striking feature being a well-proportioned tower and spire rising to a considerable height at the west end next entrance, and visible from all parts of the surrounding country.

GLASGOW.—The memorial stone of the new Chalmers Free Church has been laid. The new church fronts Pollokshaws Road, with class-rooms and hall in a separate building at the corner of Cavendish Street. There are side galleries over the aisles, also an end gallery, the seated accommodation being in all 840. In the front the central entrance is protected by a circular portico, the pillars of which are 22ft. in height. The nave is roofed with a level ceiling, divided into panels. The contracts for the church and hall amount to £6000. The architects are Messrs. H. and D. Barclay, and the contractors are:—Masons,

Webster, Walker, and Webster; wrights, Allan and Baxter; plumber, Colin Turner; slaters, A. and D. Mackay; plasterers, Alex. Calder and Son; gasfitter, John Hunter; painter, John L. Duncan; glaziers, The Blythswood Stained Glass Company. Mr. Charles Wilton is clerk of works.

A new theatre, to be called the Metropole, has been added to the list of Glasgow playhouses. Built upon the site of the old Scotia Music-hall, the transformation is complete. No doubt the walls of the old building remain, but the interior has been practically gutted and replanned. The handsome domed roof has been preserved by the architects, but about a dozen iron pillars which supported it have been removed, and strong trusses, stretching from wall to wall, substituted. The stage occupies the same position, but has been thrown forward into the auditorium some 12ft. A beautiful interior has been secured. It differs from all the other Glasgow theatres in this respect, that the audience in every part of the house is brought exceedingly near to the stage. To attain this end the great height of the building has been utilised by deeply sloping the galleries. The architects have planned a house on classical lines, which, while possessing every attribute of a charming interior, appears smaller than it really is by reason of its very compactness. The auditorium consists of a pit with front stalls, a dress circle with about 300 chairs, an amphitheatre and gallery seated together for about 1000 people, and four private boxes on the level of the circle and amphitheatre, two on either side of the stage. The general plastic decoration employed alike on the proscenium and balcony fronts is Grecian in design, and the scheme of colour a pleasing blend of cream, light pinks and blues, relieved with gold. Round the front of the dress circle balcony mythological gods and sea-horses are drawn in plastic relief, and on the balcony above dolphins and other scroll figures are similarly treated. The proscenium, following the same classical design, is tastefully decorated, having on either side a couple of white fluted Corinthian pillars with gold capitals and bold model figure work at the base. In height the proscenium is 36ft., the same as that of Drury Lane. Surmounting the proscenium is a large symbolical figure representing music and the drama, and on panels flanking it are scrolls bearing the names of "Shakespeare" and "Sullivan." The stage itself is about 42ft. deep by 80ft. wide, and has a gradient of 1 in 24. The pit gradient is 1 in 16. Mr. Wm. Hope and Mr. J. C. Maxwell, Newcastle-on-Tyne, were the architects of the building; Mr. S. F. Davidson, of the same town, was builder. Messrs. Claud Hamilton, Limited, Glasgow, supplied the electric light installation, and Messrs. A. R. Dean, Limited, Birmingham, carried out the plastic decorations and furnishings.

HALIFAX.—Building during 1897 has been fairly brisk. A large new workhouse hospital is in course of erection at Skircoat, and the first instalment of the scheme will, it is estimated, cost £100,000. There has been a fair amount of speculative building, but some difficulty has been experienced in obtaining slates for roofing buildings.

HUDDERSFIELD.—Not very many houses have been erected during 1897, there being a large number still to let. Prospects are tolerably good for the coming year. Amongst public works to be early undertaken will be the extension of Huddersfield Infirmary, and of the Corporation electric lighting works. Should the Midland Railway Bill pass, and the works be begun at once, the building trade will receive a great impetus.

INVERNESS.—For the past few years the building trade in Inverness has been attended with remarkable briskness. Many notable structures have been erected, and the old fabrics that remain have been so remodelled that they now contribute to the architectural beauty of the Highland capital. In the commencement and completion of important buildings the past year has been specially

noteworthy. The buildings of a public or semi-public character in course of construction last year have been both numerous and important. St. Stephen's Church has been erected in Barnhill district, at a cost of about £3400. The new Crown Free Church Hall, is estimated at £650. Considerable progress is being made with the remodelling and enlarging of the old Free East Church in Academy Street. The Tweedmouth Memorial Chapel at the Northern Infirmary is also nearing completion. Recently, the Highland Railway Company purchased the house adjoining the old Academy and fronting Queen's Gate, with the object of forming a new entrance to the proposed new through station, and along this roadway the trustees of Messrs. Strothers have erected a long range of warehouses. The new block, which is to cost £7000, will have a frontage of 70ft. to Academy Street, and a frontage of 50ft. to the railway thoroughfare. In Castle Street there have been many important improvements during the year, and the same remark applies to the Exchange, East Gate, Rose Street, and many other thoroughfares. Tenement building has also been very brisk, and plans have been passed for the erection of several large blocks of houses in various parts of the town. It is contemplated to erect new prison buildings at Inverness, the Castle Jail being too small to meet the requirements. Considerable alterations and additions are also about to be made at Culloiden House.

KNIGHTON.—The recent alterations and extensions to Knighton Parish Church make it one of the most noteworthy edifices in the county of Radnor. The nave of the church was restored about 20 years ago at a large outlay. Owing to various difficulties, however, the chancel remained untouched, and, though many efforts were put forth in succeeding years to place it in harmony with the other portions of the building, it was not until 1896 that active measures were taken to that end. The designs were furnished by the late Mr. Pearson, R.A., and the builders were Messrs. Cadwallader and Weale. The new chancel is 37ft. by 25ft., while the dimensions of the organ chamber are 14ft. by 12ft., and the total cost of the extensions is a little short of £3000. The floor of the chancel has been paved with encaustic tiles. The new part of the building is brightly illuminated at night by the incandescent light. The choir stalls are of carved oak, and have been furnished by Messrs. Jones and Willis, Birmingham, who have also supplied other fittings. A stone pulpit of ornate design has been substituted in place of the old one.

LEEDS.—A memorial of the late Vicar of St. Martin's, Potternewton, has been dedicated. The memorial takes the form of a new baptistery at the west end of the church, the appearance of which has thus been considerably improved. The extension really consists of a tower, about 50ft. high and 16ft. square inside. At the top is a belfry, and the building is strong enough to allow of the tower being carried higher at some future time and of a spire being added. The font, which previously stood in the north-west corner of the church, has been placed within the baptistery, and a tablet upon one of the walls bears a suitable inscription. The work, which has cost about £1000, has been carried out by Mr. Isaac Gould.

The work in connection with the construction of the Grand Arcade is now approaching completion. The south avenue is open, and it is expected that the other sections will be finished shortly. The Grand Arcade forms a handsome addition to the buildings in New Briggate and North Street. It is bounded on the west by the first named street, and on the east by North Street. Lower Merriam Street forms the boundary on the North, and on the south the arcade is separated from the Grand Theatre by a private cartway for goods. There are two main avenues and a transverse avenue entered from the centre of lower Merriam Street. In consequence of the shape of the ground the two parallel avenues vary somewhat in length. One is 286ft. and the other 263ft., and both are 18ft. wide. The

cross-arcade is 105ft. long by 15ft. wide. The façades to New Briggate and North Street are carried on wrought-iron boxed girders resting on polished red granite piers placed between the shop windows, those at the entrances to the avenues being circular. Over the shop windows are mullioned bay windows. The upper portion of each façade is divided into three imposing gables, which are broken up by moulded strings and cornices, and surmounted by bold, enriched pediments. There are two entrances from New Briggate and North Street under semi-circular arches, each being 16ft. span and 24ft. high. These arches, together with the arcades, are faced with faience highly enriched and of varied tints. The bay windows over the shops, an oriel at the north-west corner of the Briggate elevation, and the gables previously referred to, together with the general walling of the Briggate and North Street front are faced with red and buff terra-cotta. The arcades have a light and airy appearance, the front walls over the shops being set back 1ft. 9in. on either side, thus making the span of the glazed iron roof 21ft. 6in., which is 3ft. 6in. wider than the floor of the arcade. The roofs have semi-circular wrought-iron bindings of light and artistic design, 15ft. apart, supported on pilasters with enriched caps and moulded bases, all of faience. The floors of the arcades are laid with marble mosaics of light tints, with bold and simple border lines. The roofs over the shops are covered with the best light sea-green Westmorland slates. The entrances will be closed at night by wrought-iron gates of ornamental design, which can be lowered into the basement, or raised up into the arcades themselves to form grills therein. Altogether there are fifty-six shops. Messrs. Smith and Tweedale, South Parade, are the architects.

LUTON.—Mr. R. F. Turner, of Camden Town, has just purchased a site in a central position of Luton for the erection of a theatre, the cost of the building being estimated at £14,000. Plans for the theatre, which have been passed by the town council, show a large, stately building, about 60ft. high, with a frontage of 60ft., with seating accommodation for over 800 persons, arranged as pit, stalls, private boxes, dress circle, &c., compact and prettily arranged as any provincial theatre.

ROTHERHAM.—In recent years the exterior of Wath Parish Church has shown unmistakable signs of the ravages of time. To such an extent had the decay of some portions of its masonry become apparent, that it was considered necessary to repair the structure before any serious damage occurred. Workmen have been busy for the last three months taking out the decayed stones and replacing them with new, but no attempt has been made to depart from the original character of the work. Wherever a stone has been extracted, another, similar in shape, has been inserted, with its exposed surfaces blackened to prevent any appearance of incongruity, and dark-coloured cement has been employed throughout in the pointing. The spire, upwards of 100ft. high, required no new stones, incipient decay being unobserved. The freehold of the chancel is vested in Christ Church, Oxford, and this portion of the sacred edifice—though also needing repair—has not as yet received attention; but it is hoped it may do so ere long. The spaces between the stone ribs of the porch ceiling have been filled in with oak boards, and the roofs and rain-water pipes overhauled and made good. Mr. Fidler, of Eckington, was the general contractor, and the work has been carried out under the superintendence of Mr. Wilfred Campsall, architect, of Sheffield.

TAMERTON.—The railway station recently erected has been opened. The station, which is at Warleigh Wood, has two platforms, each 400ft. long, with a waiting-room on the up side, and a large building, containing all the offices and stationmaster's residence, on the other. The contractors were Messrs. A. R. Lethbridge and Son. The road leading to the village has been made at a cost of £1350.

Under Discussion.

THE WINTER SESSION.

PERTH ARCHITECTURAL ASSOCIATION.

The Perth Architectural Association met on Wednesday week, when Mr. John Anderson read a paper on "Dean of Guild Court Procedure." Mr. Young, the president, presided.

LONDONDERRY LUNATIC ASYLUM COMPETITION.

At the annual meeting of the Royal Institute of the Architects of Ireland, held recently, the report presented dealt largely with the controversy *re* the Londonderry Lunatic Asylum Competition. It states:—"A letter was addressed to the Board of Control, pointing out that the schedule of fees was much under the usual scale adopted by the Profession, and a copy of the recognised charges of architects, as adopted by the Royal Institute of British Architects and the Royal Institute of the Architects of Ireland, was forwarded to the Board of Control. The Board, in reply, informed the Council that it had been decided in the case of the Londonderry Asylum Competition to revert to the former scale already agreed to in the cases of the Portrane and Belfast Asylums. The Council, in conveying their thanks to the Board for their courteous communication, drew attention to the impracticability of the proposal of the Board of Control to withdraw the specialist's work from the architect's control. Your Council is of opinion that in order to carry a building to a successful conclusion it is absolutely necessary that at all stages of the work, from its original inception to its completion, the architect should exercise a general control over all the various contractors employed, and that he should be held responsible for bringing the entire undertaking to a successful issue. If the specialist's works were withdrawn from his control, divided responsibility would result, and in many cases dissatisfaction and possibly litigation would ensue. In connection with the employment by the Board of Control of Architect for Lunatic Asylums, the Council desires to place on record its emphatic condemnation of the practice of appointing as a nominal architect any person with whom it is proved necessary to associate a qualified architect, in order to ensure the preparation of proper plans and the necessary skilled supervision of the work, as, when such appointments are made, professional fees are paid to persons by whom no equivalent service is rendered to the public. It is the unanimous opinion of the Profession that when the design of an invited competitor is placed first by the assessor, the author should be rewarded by being entrusted with the whole of the work for which he was invited to compete and all emolument attaching to it. The Council has had under consideration the action of the Blackrock Commissioners in passing a resolution stipulating that the architect to be employed for an extension of the Town Hall should pay the clerk of works out of his commission, in contravention to the recognised rules of the Profession. The Council, in consequence of this resolution, decided to re-issue the rules as regards the charges of architects, which were adopted by the Royal Institute of British Architects in 1872, and by the Royal Institute of Architects of Ireland in 1867, and to present a framed copy of these rules to every member of this Institute."—Subsequently the meeting passed the following resolution:—"That we, the members of the Royal Institute of Architects of Ireland, desire to convey to Mr. W. H. Byrne our appreciation of his honourable and disinterested action in the matter of the Londonderry Lunatic Asylum competition. We welcome this additional evidence of the willingness of architects taking part in competitions to abide loyally by the award of a qualified professional assessor, and we deprecate any attempt to set aside or interfere with such an award."—The President (Mr. Thomas Drew) was re-elected.

Correspondence.

THE INSTITUTE EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I was interested to read Mr. Ernest Danford's remarks upon my leader in your issue of the 8th inst. entitled "Some Anticipated Regrets." I would like to point out, however, that the article was in criticism of "those various schools, studios, and classes, which of late years have so multiplied for the instruction . . . of architects," and was not directed against the Institute examinations, which I only mentioned as the probable explanation of this educational activity. I may add that my views on the subject of the Institute examinations accord, in the main, with those expressed by Mr. Danford, but they have, as he very truly remarks in his letter, been already expressed "over and over again," and since they are familiar to everyone I thought I might venture to turn for once to another phase of the subject.—I am, sir, yours faithfully, B. C.

SKIPTON COTTAGE HOSPITAL COMPETITION.

To "VERBATIM ET LITERATIM."

DEAR SIR,—I noticed your letter in the BUILDERS' JOURNAL of December 29th. As a competitor in this competition, I should be obliged if you will inform me if you were allowed to inspect the drawings in this competition, as I notice you refer to an elaborately coloured perspective view submitted by the successful competitor. The reason I ask is that my drawings were simply returned to me without any communication as to whether the competition was settled, and, if so, who was the successful competitor? I wrote to the secretary asking to be allowed to inspect the drawings after the decision of the assessor, but received no communication from him whatever. I think this sort of treatment most discourteous, and from your letter, the competition has been conducted in a most unfair manner.—Yours truly, T. EDWARD MARSHALL.
December 30th, 1897.

GUILTY OR NOT GUILTY?

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—It seems to me that the correspondents writing under the above heading are, as usual, all for their own side of the question. The workman says his master cheats and the master says his workman cheats! We hear much nowadays about what great interest the Mediaeval workman—builder and architect—always took in those noble buildings erected by them; and it makes us wonder why the men of to-day are so altered. I think the reason is the extreme hurry that men in this age are in to get the work done. The first question that one hears after "What will it cost?" is "When will it be done?" and in this hurry many things are sacrificed. Again, the worker in the olden times carried his portion of work through from the beginning to the end; nowadays a workman may start a piece of work and twenty workmen may finish it. And, as "Stonemason" observes, the builders and architects of to-day have their shady transactions; if it were possible, I could name some large firms in London doing very important work in which inequitable practices have been resorted to, and perhaps "Se Defendendo" would acknowledge that things had been painted no blacker than they really are. Can the men be expected to take an interest in work when the master looks at the work and thinks only how much money he can make out of it. I have generally found that men when treated properly and allowed to take interest in their work produce very satisfactory results. I think that much may yet be done by the masters trying to show the men that they want them to be more than mere machines. When the architect has learned to avoid designing to "catch the eye," and the builder has learned to build honestly, the workmen may learn to work thoroughly and faithfully, but not before.—Yours truly,

WITHOUT PREJUDICE.

A PLEA FOR REGISTRATION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have read with much pleasure in your issue of a fortnight ago Mr. Danford's valuable letter on the Institute Examinations. Some expressions contained therein are, to my mind, well worthy the universal attention of architects.

We must all admit that the examinations of the Royal Institute of British Architects are now beginning to be regarded as perhaps the best test of an architect's abilities under the existing order of things. But, notwithstanding this faint glimmer of acknowledgment, and the misty form of a higher appreciation of Art to which the British public are some day to be introduced, the architectural profession is regarded (if not actually with contempt) with absolute indifference.

Will any one of its leading members stand up and say conscientiously that the Profession of which he is a member holds the same status in the estimation of the public which the profession of law and medicine enjoys? I venture to answer for him in the negative. Why should such a state of things exist? Why should the Profession of Architecture be left open to all comers?

To my mind Mr. Danford hit the nail on the head when he suggests registration. With registration an accomplished fact, some, at least, of its attendant benefits would be: 1. Those who at present receive their only training (careful and valuable though it may be) at Polytechnics and technical classes would be precluded from establishing themselves as architects. 2. That all registered practitioners would be fully qualified in all technical requirements and at least well grounded in the various forms of expression which Architecture has adopted under the lead of great architects of modern and mediæval times. 3. That the employment of unqualified architects or the payment of less than the recognised fee would be as illegal as the employment of an unqualified doctor or an amateur solicitor.

It may be said, and, indeed, often is said, that registration would be derogatory to the dignity of the Profession, and possibly a hindrance to the expression of the Art. Such expressions as these are, however, unwarranted by precedence; and as to the oft-repeated remark that the same registration system as proposed to be applied to the practice of Architecture should also apply to the arts of sculpture, painting, and music, surely the circumstances under which each are employed should render apparent the absurdity of such a proposal.

The only method to test an architect's fitness for the duties to be discharged by him is examination in the various subjects connected with the Profession of Architecture.

This is what the Institute examinations aim at. Nothing more or less. But that more is required can be easily seen by the impartial observer.

People must live in houses designed for them by their architects, no matter how faulty their construction from a sanitary or hygienic point of view, although buildings may, like Dead Sea fruit, look fair to the eye. But no one is bound to employ sculpture or painting.

Again, assuming that general education has advanced to such a degree that the householder will require painting and sculpture to decorate his house, and also be able to choose and distinguish his Art, it is not unnatural to suppose that he will at the same time be also able to demand and appreciate Architecture as an Art.

For the present let us agitate for registration, or some kindred scheme of protection and State recognition, which would exclude the incompetent and untrained from the ranks of the Profession, and protect the unfortunate architects who live for and by their Art. The few great men of the Profession are, no doubt, out of harm's way, and their practice is beyond the reach of the unskilled and incompetent; but their less fortunate brethren scattered throughout the provinces feel keenly the inroads of the Cheap Jack.—Yours faithfully,

A. K. S.

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

CONSTRUCTION OF WOODEN BUILDINGS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall be glad to hear of any work which treats of the construction of temporary wooden buildings, suitable for seating large assemblies.

CONFERENCE.

So far as we are aware no book has been published dealing with the construction of temporary wooden buildings. Nor can we meet with any London publishing firm who are able to recommend a work which is likely to be of service to you.

STEAMING OF AIR-TIGHT CASES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you inform me if there is any remedy for the steaming of an air-tight case for a jeweller's window? The one in question is about 10ft. 6in. by 3ft. by 6ft., and the windows become quite opaque with the steam that is formed on them. When the doors of the case are opened, the steaming subsides a little, the top part of the window becoming clear, whilst the bottom remains unaltered.—Yours truly, C. W. S. B.

If you wish to preserve the case air-tight, your only remedy is to paint the glass with collodion or dissolved gelatine. This would effectually obviate steaming on the surface of the glass, though it would not get rid of the moisture consequent on the dissolution of the enclosed air. A more effectual remedy would be to have a couple of holes on the top and bottom of the case, thus ensuring thorough ventilation, though with this remedy the case, of course, no longer remains air-tight.

ART METAL EXHIBITION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall be much obliged if you would kindly, through your enquiry department, inform me of the name of the secretary, and any other information concerning the forthcoming Art Metal Work Exhibition at the Royal Aquarium, London, in June next, as mentioned in your columns.—Yours faithfully, H. R. N.

All communications with regard to the Art Metal Exhibition should be addressed to Mr. Edgar S. Shrubsole, Royal Aquarium, Westminster, S.W., who is the organiser of the Exhibition, and who will supply full particulars as to the conditions, with illustrations of designs, &c.

VALUING OF HOUSE PROPERTY.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you recommend me a work treating upon the valuing of small house property, &c., and the law upon the subject.—Yours faithfully, BALLOT.

The following books, all published by Messrs. Crosby, Lockwood and Son, will give you the required information: "Handbook of House Property," by E. L. Tarbuck, 5s.; "The Appraiser, Auctioneer, Broker, House and Estate Agent, and Valuer's Pocket Assistant," by John Wheeler and C. Norris, 5s.; "Tables for the Purchasing of Estates, Freehold, Copyhold, or Leasehold"; "Building Estates," by F. Maitland, 2s.

Trade and Craft.

THE THORNTON-PICKARD MANUFACTURING COMPANY LIMITED.

We have received from the Thornton-Pickard Manufacturing Company Limited, Altrincham, an advance copy of their new 1898 illustrated catalogue, which is got up in the excellently artistic style always employed by this well-known firm. In the introduction to the catalogue, we are told that "the sales for 1897 again show an enormous increase upon previous records;" and if the general appearance of the new catalogue is any criterion, we should say that the record will again be beaten in 1898. As is well-known, the products of the Thornton-Pickard Manufacturing Company are reliable, and in every way satisfactory; and it is a pleasure to look through this new catalogue (the best yet issued by the Company) and note the particulars respecting new apparatus for 1898. They include a new 5 by 4 size of the Amber Camera; the new patent film carrier already noticed in these columns; and a new aluminium shutter specially designed to meet the requirements of those who cannot afford to purchase the Standard Pattern Shutter. Full particulars are given in the catalogue of the competition for £200 in prizes. A catalogue will be sent free by post on application to the Company at Altrincham.

A DEFECTIVE CHIMNEY.

An interesting judgment was given in the Queen's Bench Division in the case of *Clarke v. Sadler*. It was an action in which the plaintiff, Miss Clarke, sought to recover compensation from the defendant, her landlord, for damage done to her furniture by a fall of soot down her drawing-room chimney. The plaintiff rented a flat in May, 1896, from the defendant in Idlesleigh Mansions, Victoria Street. She found occasion to complain to her landlord that her drawing-room chimney smoked, and there were constant falls of soot from it. In consequence of her complaints her landlord, in January last, employed a firm of contractors, Messrs. Brady and Co., to fix one of their cowl on the top of the chimney in question, in order to remedy the nuisance complained of. Messrs. Brady and Co.'s men put up the cowl, and while doing so there was a great fall of soot, which did serious damage to the plaintiff's carpet and furniture. For the defence it was contended that Miss Clarke had no right of action against the defendant. He had employed a competent independent contractor to put up the cowl, and therefore was not personally liable. If Miss Clarke had any right of action it was against Messrs. Brady and Co. The case was tried before the learned Judge and a special jury on December 1st, and in answer to questions put to them, the jury found that the defendant did contract to put up the cowl, but it was not agreed that the work was to be done reasonably and carefully; that Messrs. Brady did not undertake to do anything except to fix the cowl; that the operation of fixing the cowl was one which was likely to cause mischief to the plaintiff unless precautions were taken; that the work was negligently done. His Lordship then reserved the case for further consideration. After hearing the arguments of counsel, the Lord Chief Justice said it was clear that if the defendant undertook to do this thing for the plaintiff, the reasonable effect of that undertaking was that the obligation must be taken to be that reasonable care should be observed to prevent damage being caused to the plaintiff inside the house, as well as externally. Messrs. Brady were only deputed to do part of the work, the external part, and it was for the defendant to take precautions that no internal damage was done. Assuming that the plaintiff voluntarily undertook to do this work, and did not take reasonable precautions, he would be equally responsible. Under the circumstances, whether it was a contractual obligation or whether the work was done voluntarily, the defendant was liable.—Judgment was given for the plaintiff for £41 and costs.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AMBLESIDE.—Accepted for erecting new Wesleyan chapel. Mr. T. W. Cubbon, architect, Bank Buildings, 54, Hamilton-street, Birkenhead.—
T. Newton £2188

BARKING (Essex).—For the erection of an electric light station, East-street, for the Urban District Council. Mr. C. J. Dawson, architect, Public Offices, Barking.—
C. J. Coxhead £2,257
Geo. Sharpe, Stratford, Thunders and Edg. 2,787

* Accepted by Committee, subject to approval of Council.

BRIDLINGTON QUAY.—For the erection of four houses and premises, East Side, Flamborough-road, for Mr. W. Baldwin. Mr. J. Earnshaw, architect, Wellington-road, Bridlington Quay.—
W. Barnes £3,609
R. Bailey, Bridlington
W. Moody 2,992
Quay* £2,910

BROMLEY (Kent).—For the erection of four pairs of cottages at Jaffray-road, for the Bromley Co-operative Society, Limited. Mr. John T. Grubb, architect, Bromley. Quantities supplied.—

	Fences.	Total.
T. D. Grady	£2,613	£21 0
Podger and Son	2,134	71 15
Chapman	2,134	2,286 15
Hutchings	2,100	2,261 8
A. Poingdestre*	2,000	2,163 0
	88 16	2,068 16

* Accepted.

BROMLEY (Kent).—For the erection of four pairs of cottages, for the Bromley Co-operative Society, Limited. Mr. J. T. Grubb, architect, Bromley, Kent. Quantities by architect.—

T. D. Grady	£2,694 0 0	J. Hutchings	£2,168 0 0
Podger and Son	2,286 15 0	A. Poingdestre,	
H. Chapman	2,261 8 0	Bromley, Kent*	2,068 16 1

* Accepted.

DOUGLAS.—Provisionally accepted for erecting a Pupil Teachers' Centre and Physics Laboratory, for Douglas School Board. Mr. T. W. Cubbon, architect, Birkenhead.—
R. F. Douglas £1,492

[Architect's estimate, £1,450.]

ENNISKILLEN (Ireland).—For the erection of dispensary house, Derrygonally, for the Union Guardians. Mr. Thomas Elliott, architect, Dorling-street, Enniskillen.—
D. Funston £437 0
T. Elliott, Cashel,
John Donnelly 879 18 0

* Accepted.

FORRES (N.B.).—For the erection of shops and dwelling-houses, St. Catherine's-road and Boston-place, for Mr. William Fletcher. Mr. John Forrest, architect, 129, High-street, Forres.—

Masonry.—David Ross, Talbooth-street, Forres.
Carpentry.—Geo. Forrest, Mossitt-place, Forres.
Slatting.—Alex. Forbes, Tytler-street, Forres.
Plastering.—Angus and Ross, South-road, Forres.
Plumbing.—R. Forsyth, Talbooth-street, Forres.
Painting.—Arch. Macdonald, High-street, Forres.
Ironmongery.—W. Smith and Son, High-street, Forres.

LONDON.—Accepted for the erection of six houses, South-street, Camberwell, for Mr. A. V. Zwargberg. Mr. T. Wilson, architect, 34, New Bridge-street, E.C.—
Miller, Walthamstow £2,175

LONDON.—For the erection of a warehouse at Blackfriars-road, for Messrs. James Clark and Son. Mr. John J. Downes, architect, 199, Lewisham High-road.—
Moyle £1,214
John Appleby, Corn-wall-road, S.E.* £1,035

* Accepted.

LONDON.—For work in completing and decorating houses, Sisters Estate, Clapham Common, for Mr. H. Shepherd Cross, M.P. Mr. William Hunt, architect and surveyor, Donington House, Norfolk-street, Strand.—
Ham and Son £4,004 0
Wm. Ellis and Son £2,520 0

J. S. Minter £3,265 0
G. Godson and Sons £3,079 0
Turtle and Appleton 3,850 0
Peacock Bros. 2,980 10
J. H. Jenkins and Co. 3,335 0
H. and E. Lea 2,840 0
Wm. Antill and Co. 3,240 0
J. S. Minter 2,750 0
W. H. Lasselles and Co. 3,156 0

LONDON.—For new buildings, Upton-lane, Forest Gate, E., for the Forest Gate Laundry Company, Ltd. Messrs. Reeves and Syvche, architects, 8, Gray's Inn-square, W.C. Quantities by Mr. W. Courtney Fagg, 5, Union-court, Old Broad-street, E.C.—

	Extra for patent glazing.
Shillitoe and Sons	£2,850
Gregar and Son	2,580
Hearle and Farrow	2,498
Scrivener and Son	2,492
Welsh and Son	2,475
G. J. Hosking	2,457
Heyworth	2,434
Turtle and Appleton	2,430
Harris and Wardrop	2,335

* Including extra.

LONDON.—For erecting three shops, Queen's-road, Bayswater, W. Mr. Chas. G. Maylard, architect, 59, Cleveland-square, Hyde Park, W.—
Stephens, Bastow, and Co., Ltd. £7,798
Patman and Fotheringham £6,928

LONDON.—For alterations and additions to the "Eton Arms," Lower Park-road, Peckham, for the Winchester Brewery Company. Mr. T. W. Moss, architect.—
Ham and Son £577
W. Irwin £435

LONDON.—For the erection of additional paper, roller, and block stores to paper-staining works, Chiswick, W. Mr. Edmund M. Bowyer, architect and surveyor, Bloomsbury-mansion, Hart-street, W.C.—Quantities by Mr. John Windsor.—

	Clearing Site.	Iron Construction.	Fireproof Floor.	General Building Work.
Wheatley, Chiswick	£174 12 8			
Lindsay, Neal, and Co.	£937 15 2			
Stuart's Granolithic Stone Co.	£360 18 9			
B. E. Nightingale	£4,885	Prestige and Co.	£4,233	
H. Roffey	4,566	T. Nye	4,105	
Adamson and Sons	4,870	E. Lawrence and Sons	4,181	

MORECOMBE.—For the erection of house and three shops, Margaret-street, Bare, for Mr. Corless J. Miller. Mr. Jas. Marshall, architect, Back-crescent, Morecombe.—
Joinery.—Acton and Sons, Lancaster £343 0 0
Masonry.—Wagh and Ripley, Ilkley 713 0 0
Slatting and Plastering.—W. J. Cross, Morecombe £1,346 13 10
Rumbling and Glazing.—R. B. Abbott, Morecombe 145 0 0

MORTLAKE.—For forming new roads, Palewell Park Estate, Mortlake, for Mr. H. Shepherd Cross, M.P. Mr. William Hunt, architect and surveyor, Donington House, Norfolk-street, Strand.—
C. W. Killingback & Co. £2,257
W. Nichols £1,700
Bentham and Co. 2,024
H. Swaker 1,780
J. Jackson 1,850
H. Woodham 1,720

MYNYDDISLWYN.—For additions to school, Pontillfrith, for the School Board. Mr. Geo. Rosser, architect, Abercarn. Quantities by Mr. R. L. Roberts, Newbridge Mon.—
W. H. Ingleson £298 0 0
Rowland & Lloyd £725 0
Mainwaring and Davies 900 15 0
Ellis Williams 695 0
Williams & Thomas 998 0 0
Jno Pritchard 670 0
Edwards and Lawrence 842 6 6
C. F. Morgan, Newbridge* 645 10 0

* Accepted.

NEYLAND (S. Wales).—For the erection of Baptist chapel, for the Trustees. Mr. S. Wilson Edwards, architect, Beach Mount Villa, Mumbles.—
David Williams £1,967 0
John Morris £1,256 10
Lwl Davies 1,380 0
J. H. Thomas 1,251 0

TUNBRIDGE WELLS.—Proposed house, Boyne, Park, for Mr. A. W. Richardson. H. C. Lander, architect, Effingham House, Arundel Street, Strand, W.C. Quantities by Mr. J. T. Carey, 22, Surrey-street, Strand.—
W. E. Judd, Tunbridge Wells £1,999 0 0
C. J. Gallard, 1,744 0
Henry Young, East Grinstead 1,672 10 0
Strange and Sons, Tunbridge Wells 1,507 0 0

WEST HAMPTSTEAD, N.W.—For the erection of a block of residential flats on the site of Sandwell House, West End Lane, West Hampstead. Quantities by Mr. Geo. Stephenson, Messrs. Falgrave and Co., architects, Westminster. Holloway Bros. £14,335 0
Chessum and Sons £13,363
Patman and Fotheringham 14,100
Perry and Co. 12,900
Verbury and Sons* 11,940
Allen and Sons 13,975

* Accepted subject to modification.

COMPETITION.

THE URBAN DISTRICT COUNCIL OF EASTLEIGH.

TO ARCHITECTS.
The above Council invite APPLICATIONS from Architects for COMPETITIVE PLANS for the erection of PUBLIC OFFICES, &c., on their Recreation Ground in the Urban District of Eastleigh.

The Council offer two premiums of Fifty and Twenty Guineas respectively for the two selected designs (in order of merit), which is to include a copy of the plans for the Local Government Board.

The selected plans (which must be approved by the Local Government Board) to become the property of the Council, who do not bind themselves to employ the Architect whose plans may be finally selected, but, if he is so employed, the premium will be included in his commission and remuneration. In the event of a selected design not being approved by the Local Government Board no premium will be paid.

Further particulars and conditions can be obtained on application to me, at 19, St. Peter's-street, Winchester.

Plans (under motto, in sealed covers) must be sent to me at the Offices of the Council, Market-street, Eastleigh, not later than MONDAY, FEBRUARY 7th, 1898.

By order,
HENRY WHITE,
Clerk to the Council.

Offices of the Council, Market-street, Eastleigh, Hants.,
December, 1897.

R. I. B. A. EXAMS. PREPARATION.

personally or by correspondence, in three, six, nine, and twelve months' courses. Any subject taken separately. Special three months' course for any of the Exams. at reduced rate.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchar House, 70, Gower-street, W.C. (close to British Museum).

R. I. B. A. SOCIETY OF ARCHITECTS, and CIVIL SERVICE TECHNICAL EXAMINATIONS.

Preparations by correspondence or in residence. Fourteen first places.—G. A. T. MIDDLETON, 19, Craven-street, Strand, W.C.

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ESTABLISHED 60 YEARS.



Surveying and Sanitary SUPPLEMENT.

JANUARY 5TH, 1898.

THE COLLIMATION PLANE LEVEL BOOK.

BY G. A. T. MIDDLETON, A.R.I.B.A.

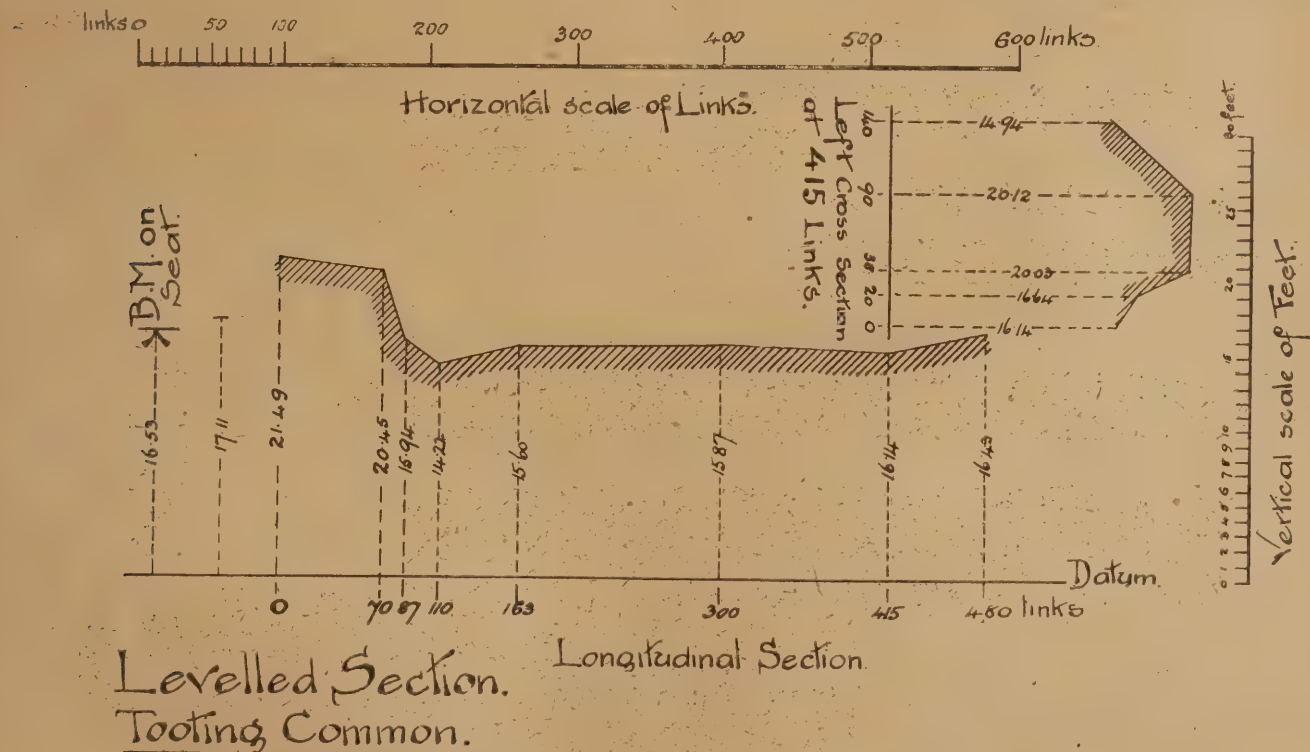
ALMOST all English surveyors are accustomed to use a level-book having columns for rise and fall; but of late years it has become customary amongst many to substitute a single column in which the collimation level is entered—that is, the

Accompanying, is reproduced a field book with one column for collimation level in the place of the two for rise and fall; and it will be seen that many less calculations are needed. On taking a back-sight, the collimation level is found by adding the reading to the height above datum; and as this collimation level is constant, so long as the level remains in the same position; all other heights above datum are entered by the simple process of deducting the reading at each spot from this collimation level.

Thus, the bench mark at the commencement

Then followed a series of intermediate sights, and the height above datum on each spot where these were taken was found by one single calculation, by subtracting the readings from this collimation height. Thus, at the start of the section line at station 4, the height above datum was 21.49ft. A reference to the plotted work will show how this was shown, though it is sufficiently obvious to anyone acquainted with levelling.

The checks upon the working are the same as usual. The back-sights and fore-sights are each totalled, and the difference between the



height of the axis of the instrument above datum. Why it is so slow in coming into universal use it is difficult to understand, for its advantages are considerable and obvious. When the rise and fall columns are used it is necessary to find the difference between each reading of a series and its predecessor, entering this difference as a rise or fall, as the case may be, and afterwards adding this to, or subtracting it from, the previous height above datum, in order to find the new height above datum. Thus two calculations are necessary.

of the line illustrated was found to be 16.53ft. above datum, the back-sight 3.93ft., and consequently the collimation level (which is equal to the sum of these) was 20.46ft. The next reading happened to be a foresight of 3.35ft., which, subtracted from the collimation level of 20.46ft., gave a height above datum of 17.11ft. The level was then moved, and a back-sight taken on to the spot which is now known to be 17.11 above datum. This back-sight read 7.11ft., and the new collimation level became 24.22ft.

totals should equal the difference between the first and last height above datum, if the arithmetic is correct. In order to check the accuracy of the field-work, however, the last reading of the series was taken on the same bench mark as that on which the series was started, with the usual result of there being a small but inappreciable error.

A series of cross levels was taken over a mound which occurred on the left hand side of the section line, at a distance of 450 links from the start, and the proper way of plotting this

LEVELS AT TOOTING COMMON.

Back Sight.	Inter-mediate.	Fore Sight.	Collimation Level.	Height above Datum.	Distance.	Remarks.
3.93	—	—	20.46	16.53	—	B. M. on Seat.
—	—	3.35	—	17.11	—	} Moved level.
7.11	—	—	24.22	17.11	—	
—	2.73	—	—	21.49	0	} Station 4.
—	3.77	—	—	20.45	70	
—	8.28	—	—	15.94	87	} Moved level.
—	10.00	—	—	14.22	110	
—	8.62	—	—	15.60	163	} Moved level.
—	—	8.35	—	15.87	300	
9.65	—	—	25.52	15.87	300	} Moved level.
—	9.38	—	—	16.14	415	
—	8.88	—	—	16.64	415	20 on left.
—	5.49	—	—	20.03	415	38 on left.
—	5.40	—	—	20.12	415	90 on left.
—	10.58	—	—	14.94	415	140 on left.
—	9.09	—	—	16.43	480	Station 5.
—	—	11.89	—	13.63	—	} Moved level.
4.33	—	—	17.96	13.63	—	
—	—	1.44	—	16.52	—	B. M. on Se t.
25.02	—	25.03	—	16.53	—	} Moved level.
—	—	25.02	—	16.52	—	
—	—	.01	—	.01 diff.	—	

THE COLLIMATION PLANE LEVEL BOOK.

is shown, together with the correct entries in field book. It very frequently happens that similar cross levels have to be taken, sometimes at quite short intervals, and while most surveyors plot them in the way shown, to right and left of the main section, treating that section very much as if it were the chain-line in a surveying field book, yet there are others who prefer to plot each separately, referring to them as cross levels at A, cross levels at B, etc., and putting similar reference letters on the main section. This is possibly the better plan when they occur frequently or where the height above datum shows considerable variation.

The Commission of Sewers, as a body, ceases to exist on January 10th, when it will be absorbed by the Corporation. The Special Committee which has considered the question recommend the creation of a Public Health Department in the place of the Commission, and the appointment for the purposes of the work of four committees possessing the same standing as the ordinary committees of the Court of Common Council, and constituted as all other ward committees are.

SIDMOUTH's new system of sewerage, constructed by the District Council in accordance with plans of Mr. James Mansergh, C.E., and Mr. G. R. Strachan, C.E., at a cost of £10,000, is now completed. In the carrying out of the work the most modern apparatus has been adopted, and storage arrangements provided in order that the sewage, by means of an outfall at "the Ham," may be discharged into the sea at a sufficient distance and only at hours when the current will carry the sewage away from the town. The work consists of a reconstruction of several of the old sewers, the provision of an impounding tank, and the moving of the outfall to a considerable distance eastward of the river mouth. New sewers have been laid down along the Esplanade, throughout Western Town and Eastern Town, Old Fore Street, Fore Street, New Street, Market Street, York Street, Ham Lane, Church Street, Cobourg Road, Mill Street, Mill Lane, Salcombe Road, through the meadows as far as the hamlet of Sid, Broadway Lane, and down the Bickwell Valley. The discharge is received into a covered concrete and white brick tank, 80ft. by 40ft., constructed in a field adjacent to the gasworks, and provided with a panstock which allows of the contents flowing to the outfall only at suitable states of the tide, thus preventing the possibility of anything being washed back on the beach. During the process of the work all defects in old drains have been repaired. The contractor for the work was Mr. C. Lang.

DILAPIDATIONS.*

BY PROF. HENRY BUSHELL, F.S.I.

AT the outset I think it important to draw attention to a "nicety" of distinction between what are actually dilapidations and the term dilapidated as applied to property used in a general sense by laymen and others. Some of the younger and less experienced members of the Profession often, I regret to say, make egregious mistakes in this direction, and consider anything a dilapidation which indicates want of repair, or even decay. Reluctant as I am to confess it, I have met some so-called surveyors scheduling dilapidations in such an exaggerated style as to suggest a total ignorance of the covenants of the lease, and evidently with little, if any, knowledge of the demised premises, or of the most vital principles of the law of dilapidations. I need not, however, point out to you the utter extravagance of scheduling as dilapidations every defect that could possibly be discovered under repairing covenants of a moderate degree. Worse than all, what is to be said of some persons who do not scruple to draw upon their imagination to such an extent (resorting to a text book for stereotyped expressions or schedules) as to give a capable person the impression that a good deal of the schedule savours strongly of the office lamp rather than of a careful inspection of the premises and a knowledge of the covenants of the lease? If such a *modus operandi* be consistent, then the most successful dilapidation surveyor (for the lessor at least) is the one who can find the greatest number of faults in a fabric. Such methods cannot, of course, be too strongly deprecated, and would, I am confident, never be sanctioned by the Council of the Auctioneers' Institute. To schedule dilapidations efficiently, the qualified surveyor would most naturally, as a first essential, study carefully the terms of the lease, well knowing that the drafting and wording of such must of necessity largely determine what are dilapidations (as well as to some extent their magnitude), the composition of the schedule, and, lastly, the valuation for claim. I know of no other branch of the surveyor's profession more onerous, or one wherein such ample opportunities are afforded for the active, skilful employment of that mature experience and sound judgment which some of the older members of the Profession fortunately possess; yet, when judges of high degree differ, in many notable cases, so

* A paper entitled "The Practical Application of the Principles and Law of Dilapidations," read before the Auctioneers' Institute,

strikingly in regard to the interpretation of covenants respecting dilapidations, surely one may with reason ask, "Who amongst us surveyors may be considered to have a perfect knowledge of this exact science?" And why is it that there are, comparatively speaking, so few dilapidation surveyors of special and acknowledged ability? Much as it is to be regretted, the ambiguity and uncertain nature of dilapidations, and the conflicting dicta of judges in cases of some importance which are on record, offer "charlatans" and other unqualified persons the opportunity to prey upon the public. I question the judgment of the beginner who holds aloof from, and assumes indifference to, the advantages and claims of any recognised professional institute or body which has for its chief object the raising of the status and the promotion of the best interests of its members. Having regard to the limited space at disposal for the consideration of a complex subject of the magnitude of dilapidations (necessarily involving so much of an obscure and controversial nature), I hope as far as possible to treat the subject in a natural order, and to effect an impartial consideration. I shall also endeavour to preserve an independent view of the different parties and interests. In the absence of specific data, it will be reasonable to assume that a lease of certain premises for twenty-one years' duration is about to be created, determinable by either party at the end of seven or fourteen years. At the earliest stage of the negotiations it would invariably be of immense advantage if a survey of the premises be made, and the condition be noted and endorsed on the lease. It is not the custom in this country, but would, I venture to think, be a desirable reform in the interests of all parties to a lease. I grant, however, that in certain cases it would be quite unnecessary, but, on the other hand, particularly in

CASES OF OLD PREMISES, or premises much above or below their "proper degree of repair," the precaution would be an admitted "indicator" of the condition of the demise at the commencement of the term, which would otherwise, at the end of a number of years, inevitably be a matter of doubt or speculation, probably resulting in litigation. The age of the premises at commencement of a lease is also of great importance. I do not think the age alone of a building necessarily affords sufficient proof as to what reparations are claimable, or of their degree of quality. It will usually be sufficient if the surveyor go upon broad and intelligent principles in determining to what extent the age and character of the demised premises will influence the extent of the dilapidations as well as their degree of quality, it being generally laid down by legal authorities that due and proper allowance must be made in respect of old structures, for the lessor is not to have, at the end of his term, a new structure, replete with modern fittings and improved accommodation in place of his old building. There are so many ulterior matters which affect almost every step that is taken in dilapidation cases, that rigid universal rules cannot be laid down or adhered to. The lease invariably contains covenants of a more or less stereotyped form, and although no particular form is necessary, the language used should clearly and unmistakably reveal the intentions of the parties. It may be taken for granted that in the case of leases for a number of years, the responsibilities are to be undertaken by the lessee, and this liability ranges downward from the case of a tenancy under which the lessee is liable in respect of all repairing and upholding covenants, to the simple case of a yearly tenant who is practically responsible only for voluntary waste or injury. Adverting briefly to the different modes of contract to repair, I cannot do better than quote that acknowledged authority, Woodfall. He says: "Leases of houses, &c., usually contain a covenant by the lessee to repair and keep in repair the demised premises during the term; also another distinct covenant to repair specific defects within a certain number of months (usually three) after written notice thereof; also to paint the outside wood and ironwork in a certain manner at stated times,

and a covenant to leave the premises in proper repair at the end or other sooner determination of the term, besides other covenants as agreed, after which usually follows a proviso for re-entry on breach on any of the covenants." The 14th section of the Conveyancing and Law of Property Act, 1881, affords the lessee relief against forfeiture. Under this Act a right of re-entry or forfeiture, arising from breach of a condition or covenant in a lease, shall not be enforceable by action or otherwise, unless and until the lessor serves on the lessee a notice which specifies the particular breach complained of, and, if the breach is capable of remedy, requiring the lessee to remedy the breach, and, in any case, requiring the lessee to make compensation in money for the breach, and if the lessee fails within a reasonable time thereafter to remedy the breach, if it is capable of remedy, to make reasonable compensation in money to the satisfaction of the breach. The Court may at any time during an action to enforce a right of re-entry or forfeiture, grant a lessee relief upon such terms as it thinks fit. For the purposes of this section lease includes an underlease. The section does not apply to covenants against assigning or under-letting, or to a condition for forfeiture in case of lessee's bankruptcy. Neither does it affect the law relating to forfeiture in case of nonpayment of rent. A person who proposes to take an unfurnished house on a lease of more or less severe form, would be prudent to engage a competent surveyor to inspect and report upon the condition of the premises, and the practical effect of the covenants, and more particularly as the worst defects in a structure are often not discoverable except under the most searching examination. It may be taken for granted that to be able to discern the effect of a series of covenants in a lease, in connection with premises of more or less indifferent build, a surveyor must possess special qualifications and training. The surveyor, if reporting for either party on covenants to a proposed lease from the practical as distinguished from their purely legal effect, will do well to examine the premises, and then carefully consider every covenant or undertaking (expressed or implied), especially those which set forth the maintenance of the premises, insurance, the periodical surveys for repairs, the degree of repair, the surrendering covenant, and the specific undertakings to paint or decorate internally and externally at fixed intervals of time. In short, the surveyor must be able, on the one hand, to protect the lessor's interest (usually effectually secured by reducing his liabilities to a vanishing point), or, on the other hand, to modify for the lessee terms which may appear to be unduly onerous and exacting. The importance in this direction is fully appreciated by Woodfall, who states, under the section referring to "Implied Contract to Repair by Landlord": "Although in letting a furnished house the lessor impliedly promises that it is reasonably fit for occupation, in the absence of any agreement on the subject a person who agrees to take a house unfurnished must take it as it stands, and cannot call on the lessor to put it into a condition which makes it fit for living in. Before a person takes, or agrees to take, a lease of a house for a long term, with the usual covenants to keep it in repair during the term, he should have the premises carefully examined and reported on by an experienced surveyor, otherwise he may unwittingly incur very serious liabilities, especially if the foundations are defective, or the house is so slightly and cheaply built as not to be likely to last during

the whole term, without considerable repairs, which is not infrequently the case." Passing from the creation of the lease, we may next briefly notice that the periodical surveys for repairs are frequently not made so often as covenanted for, such inspections being at the discretion of the lessor. They may be relaxed without prejudice by the lessor, who may, possibly, on so determining, consider the stability of the premises, and the reputation of the lessee. Covenants in leases are of such a varied and extensive nature as to render it impossible to notice them in detail in a paper, but the importance of covenants, and the many breaches of them which are ever recurring, prompt me to notice a few by way of illustration. A contract to repair by either party to an agreement or lease may be expressed or implied, although the latter mode is not always desirable. As a general rule it is fairly safe to say that a lessor is under no implied obligation to repair, hence the advisability of reciting any undertaking to repair in the agreement. Where the lessor covenants to do repairs, the condition is implied that notice of want of repair must be given. A covenant by lessor to keep drains in good and tenantable repair has been ruled by Mr. Justice Wills not to extend to the rectification of a structural defect. Woodfall states that "Where the landlord expressly binds himself to do any repairs, there is no implied condition that if such repairs be not done the tenant may quit; but it was held in an old case that the tenant may do the repairs and deduct the expense from the rent, and such would still seem to be the law. At any rate, the tenant could counterclaim for the expense, if sued for the rent." When a lessee

COVENANTS TO KEEP PREMISES IN REPAIR, and to leave them in repair at the end of the term, he must, if necessary, put them into repair, for otherwise they cannot be kept or left in repair in accordance with such covenant. Notice to repair at interim periods need not be given by the lessor if the lessee covenants to at all times keep the demised premises, and all parts thereof, in proper or good repair. If they are at any time out of repair under such a covenant, the lessee commits a breach, for which the lessor may, even during the term, recover damages commensurate with the injury to the reversion. A literal performance of a covenant to repair is not required at frequent or interim periods, but it will be sufficient if, under such, or similar circumstances, the lessee fairly and reasonably performs the covenants. The Courts, rightly, will not regard any such clause in a "vexatious" manner. Notice under a covenant to repair forthwith may invariably be taken to mean within a reasonable period, not immediately; in most instances within three months would be considered to be with all reasonable celerity. A lessee is not liable for breaches of covenant to repair, committed before the execution of the lease by the lessor, although subsequent to the day from which the term is to commence. On a covenant to repair, and keep in repair, it is a breach to pull premises down wholly or partially, or to make structural alterations, as to form openings in a wall, or to remove a division wall which separates a yard from an adjoining property, or to break a doorway through the wall of a demised house into an adjoining house. In the case of painting a house (although usually covenanted for in expressed terms), some degree of painting must be admitted under the term "repair;" as, for instance, painting

necessary for preservative purposes. General covenants to repair, and leave in repair, extend to all buildings erected during the term. But, where in a lease of land with buildings on it, the covenant was to repair the buildings demised, and to rebuild them, if necessary, and to keep the fences in repair, it was held that the tenant was not bound to keep in repair additional buildings erected on other parts of the land. A covenant to yield up in repair all buildings and improvements erected during the term, has been held to be broken by the removal of a verandah, the lower part of which was attached to posts fixed in the ground; but if the buildings erected during the term be solely for the purpose of trade and manufacture, and rest merely upon blocks or pattens, the covenants to yield up in repair all buildings to be erected during the term does not extend to them, although it would be otherwise if they had been let into the soil. On this point, however, many distinctions in favour of trade have been made. Where a lessee agrees to keep in repair the messuages, buildings and premises demised, the same being first put into repair by the lessor, the latter words create a covenant on the part of the lessor to do all such repairs, and also form a condition precedent; therefore, until the lessor has put all the demised premises into repair, the lessee cannot be made liable for non-repair. When a company or public body gives notice to the tenant that they are willing to treat for the purchase of his interest, under the Lands Clauses Consolidation Act, 1845, the tenant is not free from his liability to repair until a conveyance of the premises to the company be executed. There are, apart from express contracts to repair, others which are implied. For instance, in the absence of any express contract to repair, there is the implied liability in the case of demised premises, that the tenant will use such in a "tenant-like" manner. If the tenancy be for years, this obligation is merged in the more definite and statutory obligation not to commit or permit waste. There appears to be no implied contract whatever by the lessor to repair under any circumstances. Yearly tenants are also exempt from any implied liability to repair; the extreme requirement, at any rate, is to keep premises wind and watertight, and to remedy wilful injury. Although somewhat conflicting decisions have in the past been given hereon, the more general custom appears to free the tenant from all liability to repair anything except wrongful damage. I think, however, it is carried to the extreme if, as Woodfall states, "the broken glass of windows need not be replaced by new glass, but that an exclusion of wet by boards, or other unsightly modes, would be sufficient." Presuming that the lease has nearly expired, the next step is the all-important one to both parties, i.e., that of the surveyor's examination of the premises to discover the dilapidations, if such exist. I am afraid that the majority of persons would consider this qualification somewhat irrelevant, but may I add, in justification, that I once knew a case where, at the expiration of a lease, it was readily admitted—after examination of the premises by the architect acting for the lessor—that no dilapidations whatever could be claimed. I grant this to be an exceptional case; and, on the other hand, innumerable instances are on record of lessees who during their term had so neglected the tenements as to allow them to fall into a state of decay, if not collapse, having utterly disregarded their liabilities to repair and maintain, &c.

(To be continued.)

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—				
Jan.	8	Shoeburyness—Erection of Hall	Committee for Victoria Hall	W. Cox, Churchwarden, High-street, Shoeburyness.
"	8	Kingussie, Scotland—Warehouse, &c.		A. Mackenzie, Architect, Kingussie, Scotland.
"	8	St. Aidan's, Belfast—Mission Hall		A. T. Jackson, 5, Corn-market, Belfast.
"	9	Kirkbride, Cumberland—Erection of Houses		E. Hall, Grocer, Kirkbride, Cumberland.
"	10	Bedford—Offices and Store-rooms		Engineer, Electricity Works, Bedford.
"	10	Lyndhurst—Stables, Billiard-room, Greenhouse, &c.	Commissioners of Woods, Forests, &c.	Hon. G. Lascelles, Queen's House, Lyndhurst, Hants.
"	10	Ben Rhydding, Yorks.—Erection of Residence		Empsall and Clarkson, 7, Exchange, Ben Rhydding.
"	10	Box, Wilts.—Erection of Villa Residence	Mr. Martin	W. H. Stanley, Architect, Market House-ch., Trowbridge.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Jan. 10	Dublin—Additions to Disinfecting Depot	Corporation	C. J. McCarthy, Architect, Municipal-buildings, Dublin.
" 10	Manchester—26 Three-story Tenement Buildings and 15 Shops (Two Contracts).	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 11	Radcliffe, Lancs.—Erection of Buildings	Urban District Council	Engineer, Council Offices, Radcliffe.
" 12	Ryther—Church Restoration		C. H. Fowler, Architect, The College, Durham.
" 13	Lewisham, S.E.—Erection of Buildings	Guardians of St. Olave's Union	A. H. Newman, 31, Tooley-street, London Bridge, S.E.
" 13	Burley-in-Wharfedale, Yorks.—National School		E. C. Brooke, 4, Huddersfield-road, Brighouse.
" 13	Billerica, Essex—Erection of Infirmary, &c.	Guardians	A. T. G. Woods, Architect, New-road, Brentwood, Essex.
" 13	Leicester—Raising Roof of Boiler-house, &c.	Sanitary Committee	E. G. Mawbey, Borough Surveyor, Town Hall, Leicester.
" 13	New Quay, Cornwall—Erection of Hotel		S. Trevail, Architect, Truro.
" 14	Kingstown, Ireland—Construction of Municipal Offices	Commissioners	J. Donnelly, Town Clerk, Town Hall, Kingston.
" 14	Portland Bill, Dorset—Ten Coastguardsmen's Dwellings	Admiralty	Director of Works Dept., 21, Northumberland-avenue, W.
" 15	Archiestown, Scotland—Alterations on Two Houses		D. Maclean, Blacksmith, Archiestown.
" 15	Harwich—Additions to Schoolroom, Pulpit, &c.	Congregational Church Committee	J. W. Start, Architect, Colchester and Harwich.
" 17	Dartford—Erection of Cemetery Walls, Chapels, &c.	Rural District Council	G. H. Tait, Engineer, Lowfield-street, Dartford.
" 17	Ireleth, Lancs.—Erection of Three Cottages	Trustees	R. P. Nelson, Surveyor, Broughton and Dalton-in-Furness.
" 17	Isle of Wight—Additions, &c., to Infirmary	Royal Isle of Wight Infirmary	J. Fardell, The Offices, Market-st., Ryde, Isle of Wight.
" 18	Dover—Erection of Boiler House, &c.	Town Council	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 22	Blenau Ffestiniog, Wales—Erection of Schools	County School Governors	Willink and Thicknesse, 14, Castle-street, Liverpool.
" 23	Cullingworth—Thirteen Houses		D. Weatherhead, 55, Devonshire-street, Keighley.
" 24	Epsom, Surrey—Temporary Asylum Structures	London County Council	R. W. Partridge, Clerk, 21, Whitehall-place, S.W.
" 24	Swindon—Erection of Washing Baths	G.W.R. Medical Fund Soc. Committee	Society's Offices, Swindon.
" 24	Horton, near Epsom—Additions, &c., to Asylum, &c.	Asylums Committee, L.C.C.	R. W. Partridge, Clerk, 21, Whitehall, S.W.
" 24	Llanwrst, Wales—Erection of School		H. Teather, Architect, Andrew's-bldgs, Queen-st., Cardiff.
" 25	Bethnal Green, E.—Dwellings on Boundary-street Area	London County Council	T. Bell, Clerk, Council Offices, Spring-gardens, S.W.
" 26	Mitcham, Surrey—Erection of Visitors' Room, &c.	Guardians of Holborn Union	C. E. Vaughan, 25, Lowther-arcade, Strand, W.C.
" 27	Farnborough, Kent—Extension of Infirmary Buildings	Bromley Union Guardians	J. Ladds, 7, Doughty-street, Mecklenburgh-square, W.C.
Feb. 1	Southampton—Erection of Hospital	Town Council	Greenway and Smith, 21, Queen Anne's-gate, Westminster
" 1	Dudley—Erection of School, &c.	Grammar School Governors	Woodhouse and Willoughby, 100, King-street, Manchester.
No date.	Bolton—Rebuilding Inn. (Three Contracts.)	R. Seed and Co. Limited	C. N. Openshaw, Engineer, 6, Fleet-street, Bury.
"	Church Stretton, near Shrewsbury—Additions to Hotel		J. R. Withers, Architect, Shrewsbury.
"	Craigellachie, Scotland—Erection of Bank Buildings		Dunn and Finlay, 35, Frederick-street, Edinburgh.
"	Croscgates, Yorks.—Four Terrace Houses	W. Conn	W. Walker, Albert Mount, Horsforth.
"	Dromahair, Ireland—Erection of Creamery	Committee of Dairying Society	J. O'Rourke, Secretary, Dromahair.
"	Lanchester—Erection of Six Houses		J. Buckham, Timber Merchant, Lanchester.
"	Shirebrook, Pleasley—Additions to Schools	School Board	F. Ball, 23, King-street, Nottingham.
"	Swansea—Erection of Block of Offices		Margrave & Peacock, Architects, Metal Exchange, Swansea.
"	Peterborough—Four Villas		W. Boyer, Architect, Cowgate, Peterborough.
"	Lurgan, Ireland—Additions to Parochial House	Rev. M. B. McCoville	J. J. McDonnell, 27, Chichester-street, Belfast.
"	Ramsgate—Rebuilding 33-35, York-street	Co-operative Society Limited	A. R. Pite, Architect, Effingham-street, Ramsgate.
"	High Harrogate—Shop, House, Four Cottages	T. Sadler	A. Hiscoe and Son, Architects, James-street, Harrogate.
"	Harrogate—Alterations, &c., to Hotel		T. B. Wilson, 12, East Parade, Leeds.
ENGINEERING—			
Jan. 8	Ballyshannon, Ireland—Waterworks	Guardians	J. Perry, County Surveyor, Galway.
" 8	Guernsey—Hire of Dredger		J. H. Duquemin, States Engineer, States Offices, Guernsey.
" 9	Athens—Dock Extensions		Chancery of the Monarchy Attache and Boticie, Athens.
" 10	Dublin—Supply, &c., of Boilers, Water Tanks, &c.	General Prisons Board for Ireland	S. H. Douglas, General Prisons Board, Dublin Castle.
" 10	Bootle, Lancs.—Electric Lighting Works	Corporation	J. H. Farmer, Town Clerk, Town Hall, Bootle.
" 10	Bedford—Supply of Electric Lighting Plant	Electric Light Committee	T. S. Porter, Town Clerk, Town Hall, Bedford.
" 11	Northallerton—Iron Bridge	Rural District Council	W. Fowler, Clerk, Council Offices, Northallerton.
" 11	India Office, S.W.—Supply of Railway Carriages		Director-General of Stores, India Office, Whitehall, S.W.
" 12	Sunderland—Pumping Plant, &c.	Guardians	W. and T. R. Milburn, 20, Fawcett-street, Sunderland.
" 12	Worthing—Covering Reservoir, &c.	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 14	Bordeaux, France—Construction of Ship		The Prefect of the Department of Gironde, Bordeaux.
" 18	Gloucester—Electricity Works	Electricity Supply Committee	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 19	Kirkcaldy—Construction of Reservoirs, Filters, &c.	Waterworks Commissioners	W. D. Sang, C.E., Kirkcaldy.
" 20	Terragona, Spain—Construction of Telephone System		Commercial Department, Foreign Office.
" 20	Navan, Ireland—Construction of Waterworks	Town Commissioners	J. H. H. Swiney, Engineer, Avenue-chambers, Belfast.
" 31	Klipplaat, Cape of Good Hope—Railway		Agent-General for Cape of Good Hope, 112, Victoria-st., S.W.
Feb. 1	Dover—Supply of Engines	Town Council	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 1	Birkenhead—Two Steel Ferry Steamers	Corporation	Ferry Manager, Woodside, Birkenhead.
" 28	Guipuzcoa—Plans and Tender for Electric Tramway	Provisional Board	Commercial Department, Foreign Office, London.
" 28	Fernambuco—Port Works	Government	Brazilian Embassy, London.
No date.	Barney, Lincs.—Sinking Well		Hird, Clerk to Parish Council, Bardney, Lincoln.
"	Worcester—Iron Mud Drum and Tip Cart	Corporation	T. Calkin, City Engineer, Guildhall, Worcester.
IRON AND STEEL—			
Jan. 10	Harrogate—Supply of Cast-iron Pipes, &c.	Corporation	S. Stead, Borough Surveyor, Municipal Offices, Harrogate.
" 11	Willenden—Galvanised Iron Fencing	District Council	O. C. Robson, Public Offices, Dyne-road, Kilburn, N.W.
" 12	London, S.W.—Steel Rails, Fishplates, &c.	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 12	Halifax—Supply of Gas Meters, Iron Valves, &c.	Gasworks Committee	T. Holgate, Gas Engineer, Halifax.
" 27	Willenhall, Staffs.—Supply of Wrought Iron Fencing, &c.	Urban District Committee	C. J. Jenkins, Surveyor, Council Office, Willenhall.
PAINTING AND PLUMBING—			
Jan. 10	Darwen—Painting, Papering Municipal Offices, &c.	Corporation	R. W. Smith-Saville, Engineer, Municipal Offices, Darwen.
ROADS—			
Jan. 8	Budleigh Salterton, Devon—Road, Sewer, &c.	Urban District Council	E. S. Warren, Architect, Commercial-chambers, Exeter.
" 8	Slough—Street Works	Urban District Council	W. W. Cooper, Surveyor, 1, Mackenzie-street, Slough.
" 8	Wakefield—Private Street Works		City Surveyor, Town Hall, Wakefield.
" 10	Moss Side, Lancs.—Sewering, Paving, Flagging, &c.	Urban District Council	W. R. Acton, Surveyor, Moss-lane, East.
" 11	Southgate—Making-up Private Streets	Urban District Council	C. G. Lawson, Council Offices, Palmer's-green, N.
" 12	Chatham, Portsmouth, & Devonport—Supply of Teams	Admiralty	Director of Navy Contracts, Admiralty, Whitehall, S.W.
" 13	Southend-on-Sea—Tar Paving	School Board	W. V. Hobbs, 57, High-street, Southend-on-Sea.
" 19	Homerton—Roadway	Hackney Board of Guardians	F. E. Coles, Clerk, Homerton, N.E.
" 19	Fulham—Making-up and Paving Road	Vestry	C. Botterill, Surveyor, Town Hall, Waltham-green, S.W.
No date.	Dunoon, Scotland—Road, Retaining Walls, &c.	Commissioners	C. J. M. Mackintosh, Burgh Surveyor, Burgh-bldgs., Dunoon.
SANITARY—			
Jan. 8	Troon, Scotland—Extension of Sewer	Commissioners	R. Young, Clerk, Troon.
" 11	Southgate—Construction of Sewer	Urban District Council	C. G. Lawson, Council Offices, Palmer's Green, N.
" 11	Southgate—Short Lengths of Sewers	Urban District Council	C. G. Lawson, Council Offices, Palmer's Green, N.
" 11	Belfast—Earthenware Pipes	Corporation	J. C. Brentland, Town Hall, Belfast.
" 12	Felixstowe—Construction of Pipe Sewer	Urban District Council	G. S. Horton, Surveyor, Town Hall, Felixstowe.
" 15	Balachulish, Oban, Scotland—Drainage Works	Lorn District Committee	K. Macrae, Surveyor, Oban.
" 17	Coventry—Sewers, Subsidence and Straining Tanks, &c.	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 24	Hendon—Pipe Sewer, Manholes, &c.	Urban District Council	S. S. Grimley, Public Offices, Hendon, N.W.
" 25	Lisbon—Sewerage and Drainage Works	Secretary of State	Commercial Department, Lisbon.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 7	Wolverhampton—Designs and Tenders for Motor Vans for Street Scavenging		Public Works Committee, Wolverhampton.
" 7	Eastleigh—Plans of Public Offices	£52 10s., £21	Urban District Council.
" 11	Barrow-in-Furness—Designs for Technical Schools	£50, £20	Corporation.
Mar. 1	Newcastle-on-Tyne—Infirmary (Local Architects)	(No First), £150, £100, £50	Building Committee.
" 11	Berwick-on-Tweed—Plans of Police Station & Lock-up	£50, £25	Corporation.

THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

Baths Competition at Battersea.

The three premiated designs in the Public Baths and Wash-houses Competition at Battersea were on view last week at Battersea Town Hall. Exception must be taken to this system of exhibiting only the winning designs. The value of a public exhibition—beyond the chance it affords to those interested of seeing what is proposed to be done—is that it submits the assessors' award to the touchstone

of public opinion. In such cases as this it is impossible to say whether the best designs have been chosen or not; and this is unsatisfactory, both for winners and losers. With regard to the three designs exhibited, it is difficult without consulting the conditions of competition and the competitors' reports, to see why they have been ranked in this particular way. Presumably there are reasons which are not at first apparent. The first premium is awarded to Mr. F. J. Smith, of Westminster. This design is spoilt by the arrangement of the block facing the front to Battersea Park Road. The peculiar shape of the site, which is at the junction of two

roads forming an acute angle, seems to have been too much for all the competitors. The only one who has made any attempt to grapple with it is Mr. Tiltman, placed third. In this first premiated design it has led to the introduction of diminutive triangular areas, which for light and ventilation are too small to be of any practical value, and to an entrance hall of a shape it would be difficult to describe. There is nothing architectural about this; it is not even practical. The laundry arrangements are better, though even here it is found necessary to have three little areas almost as bad. A 7ft. corridor to the waiting-room of the laundry is a good feature, as it supplies standing room for the perambulators in which the linen is generally brought. The house laundry is placed on the first floor; this, surely, would have been better downstairs, in the basement if possible. The elevation to Battersea Park Road is quiet and inoffensive, and gets a certain advantage by following the street frontage line. The side elevation, however, is spoilt by the introduction of three windows to the baths, with elaborate features over them, not in the best of

side street, and sets back wherever it touches the site line of Battersea Park Road. This cuts up the front elevations, and destroys all breadth and dignity. A better entrance hall has been provided to the large swimming bath, the house laundry has been placed in the basement, and in one or two small points, perhaps, this design scores over No. 1, though in others it is far behind. The crèche, for example, has no outlook—it has one window into a very small area, and is top-lighted. This surely should be a well-lighted, cheerful, and airy room. No. 3, by Mr. A. H. Tiltman, seems in some respects to be the best. The large swimming bath has been brought forward to the Battersea Park Road, and given a slightly splayed end. The angle left at the junction of the two roads has a circular room used as a club room, or artists' retiring room. This arrangement enables the elevations to be treated in a more characteristic way. The lavatory, with its row of w.c.'s, however, is not just the thing to make a feature of on the front elevation. The entrance to the swimming bath is not, perhaps, in the most convenient position. The laundry arrangements are good, and



DRAWING ROOM, "CLARENDON," HELENSBURG. WILLIAM LEIPER, ARCHITECT.

of public opinion. In such cases as this it is impossible to say whether the best designs have been chosen or not; and this is unsatisfactory, both for winners and losers. With regard to the three designs exhibited, it is difficult without consulting the conditions of competition and the competitors' reports, to see why they have been ranked in this particular way. Presumably there are reasons which are not at first apparent. The first premium is awarded to Mr. F. J. Smith, of Westminster. This design is spoilt by the arrangement of the block facing the front to Battersea Park Road. The peculiar shape of the site, which is at the junction of two

taste; they are both useless and pretentious. This design is an instance of what is too often seen in competitions: an attempt to make up for indifferent planning by an elaborate finish on the drawings. The before-mentioned entrance hall of impossible shape has the mosaic floor most carefully put in with lines and dots in different colours. If the time which was wasted in doing this had been utilised to improve its shape, it would have been better for the design. Mr. J. Hatchard Smith has been awarded the second place. This design, instead of following the frontage line to Battersea Park Road, as did the first premiated, is set out parallel to the

there are not so many little areas dotted about as in the others. The crèche is the best of the three, being larger, and having windows to the side street, but ought not its entrance to be under control? In many respects the outside appearance of this design is the most pleasing, and it certainly is illustrated by the best drawings. None of the designs have much pretension to be called Architecture, but this is the case with most buildings of this class. Surely it is not beyond the powers of the architects of the present day to produce something that shall be characteristic and artistic as well as convenient.

A. R. J.

Millais at the Royal Academy.

THE winter Exhibition at Burlington House comprises, perhaps, the most representative collection yet made of the works of a single artist. No modern painter has had so large a public as Millais, though others have influenced more profoundly a smaller world. Millais, in fact, is the mirror of Victorian Art; reflecting in his immense range of power every important phase of experiment and fashion, from the quasi-Classic voluptuousness of Etty to the naïve asceticism of the early pre-Raphaelites, and from the brilliant realism of his few great subject-pictures to his almost undisputed sovereignty (excepting Watts) of contemporary portraiture. The least original and the most impressionable of the pre-Raphaelite brotherhood, Millais seized and made good use of each subjective inspiration that came to him by contact with Rossetti and Holman Hunt; and fell back, when that immediate stimulus was exhausted, upon a technical genius strong enough to carry him on to independent fame. Thus the sum of his achievements appeals to the whole Art-loving community; reaching at one end of the scale that section who care only for the pre-Raphaelite Millais, and regard as apostasy all later work than 1857, and at the other the admirers of his "Christmas Number" period, typified by such nursery trifles as "Cinderella," "Bubbles," and "Puss in Boots." Between these extremes stand the Millais of the sixties, with the sober charm of his illustrations to *Once a Week*, the middle-class sentimental Millais of "Yes or No," "The Widow's Mite," and "Peace Concluded," and beyond them, in the "last stage of all," Millais the pot-boiler, the painter of nonentities in fashionable life. Fortunately, a generous public spirit prevails among the owners of Millais' work, making it accessible for frequent exhibition, instead of being smuggled off to America, like so much of Rossetti's, or jealously monopolised, like the masterpieces of Sandys. The hanging committee have not spared to put his reputation to the severest test by the inferiority of some of the examples included; but it is the highest praise of his successes to say that they bear without injury the presence of his failures. Looking back dispassionately at the pre-Raphaelite controversy in the light of the present exhibits, one may frankly admit that the critics of 1850 had some reason on their side. They stupidly failed to see the spiritual tenderness and pathos of "Christ in the House of His Parents," and to recognise the entirely new note which it struck in the Art of the day; but one can sympathise with their repudiation of its old and wrinkled Virgin and its intolerable red-headed Christ. It is hard to believe that the crude and ungainly "Woodman's Daughter" and "Ferdinand Lured by Ariel" belong to the same period as "Lorenzo and Isabella"—so full of happy characterisation and humorous grace. "The Huguenot" remains without doubt his most completely successful picture, and the most generally loved. It marks the zenith of his intellectual as well as his technical power; and the point at which his too derivative imagination realises itself most fully. Near it must be ranked "The Order of Release," "The Blind Girl," "Sir Isumbras at the Ford," "Ophelia," "The Vale of Rest," "Autumn Leaves" (strangely reminiscent of Fred Walker), and "Mariana." How admirably do these pictures carry their sumptuous burden of colour! And how exquisite are the shimmering greens of "St. Agnes' Eve," the blue and yellow of "Esther," and the russet yellow-brown of the lady's dress in "The Proscribed Royalist"—described by

the colour-blind cataloguist as "red!" On the whole, Millais can hardly be said to have been happy in his models. Striking exceptions can of course be found, as in "The Huguenot" and "The Order of Release," where both sitters are perfectly suited to their parts and to each other; and in "Lorenzo and Isabella," painted at a time of fertile enthusiasm, with a singularly brilliant and interesting circle of friends to draw upon. But the frank ugliness of many pre-Raphaelite models is by no means without its value. The worst of them have inspired work of more artistic merit than the great bulk of commissioned portraiture.

E. W.

Hoardings. AN attempt is being made to improve the physiognomy of the Boulevards in Paris.

The Parisian sense of the artistic fitness of things has been outraged; the authorities have found it necessary to "adopt restrictive measures against the growing use of electrically illuminated and other moveable advertisements in the streets at night." This is as it should be, and the example is to be warmly commended to the authorities in London where, to-day, there are quite as many flagrant examples of this particular form of abuse in advertising as in the French capital. The question of these electrically illuminated signs and symbols naturally leads on to the more debatable one of street hoardings. Hoardings at their best are, of course, a necessary evil. But the evil of their existence might very easily be mitigated. They must ever continue to obstruct, in more or less degree, the public way; but it is not possible, with the present-day boom of the really artistic poster, to so dignify the pictorial representations figuring on our hoardings as to constitute them the wayfarer's "everyday" Art Gallery? This is, perhaps, only a matter of time; as things stand to-day, however, our hoardings are distinctly unsatisfactory. Some of them are very far from being "art galleries"; where they are not distressingly bald they are luridly vulgar. In the matter of eyesores of this nature, the City is perhaps one of the greatest offenders, though it is equalled, if not out-done, by some of the more important thoroughfares in the West End. As though the maintenance of numerous hoardings were not sufficient, it has, in many instances, been deemed necessary to board in upper-story windows in order to lavishly cover them with most appalling examples of the pictorial art. With present powers, it is, of course, impossible to prevent the owner or occupier of a building of some architectural merit from hiding that merit as much as possible behind the colossal gilded letters which reveal to us the "secrets" of the occupancy, but surely it is not too much to hope that some efficient check may be placed upon the ever-increasing enterprise of the advertiser, whose happy medium is a street hoarding. Why not some sort of a censorship? But in this suggestion, perhaps, our ultra-artistic soul soars above the level of commonplace practicability. After all, it is in the public street that one spends a very great part of one's waking life, and it is only a reasonable and rational demand that the Architecture of our streets should not be permitted to suffer at the hands of all and sundry with pills to sell or a dramatic performance to be made known. Hoardings, like the poor, are likely to be always with us, and we can only hope that the really artistic poster will come more and more to the front, that our hoardings will be more and more adorned by the work of the best artists of the day.

H. C.

WAKEFIELD CATHEDRAL.

THE ENLARGEMENT SCHEME.

THE death of the late Mr. Pearson, R.A., will have the effect of somewhat delaying the execution of the enlargement scheme in connection with Wakefield Cathedral, which had been definitely resolved upon as a memorial to the first bishop of the diocese. The scheme was propounded in a report prepared by Mr. Pearson not long before his death:—"It is quite apparent that the chancel, as it is at present while possibly sufficient for the wants of a parish church, is lacking in the importance and dignity, and also in the accommodation necessary to a cathedral. The absence, too, of any chapel for early services and small congregations must be much felt, while the vestry accommodation, even for a parish church, is exceedingly limited. I have endeavoured to provide for all these requirements under one scheme at the east end, so as to disturb the existing church as little as possible, besides which the existing site itself seems to point to the convenience of such an arrangement. Briefly, the design may be described as follows:—

THE EXTENSION OF THE CHANCEL

eastwards, besides giving the increased length to the choir which it so much needs, provides also a retro-choir—a characteristic feature of our English cathedrals. Approached from the retro-choir, and forming a continuation of it, a chapel is obtained, which, together with the retro-choir, will give ample accommodation for early and occasional services. The total extension eastwards amounts to 60ft. The chancel aisles are extended eastwards to the same extent as the retro-choir, and this extension takes the form of north and south transepts with eastern aisles. These transepts, by their spaciousness, will contribute very much to the dignity and cathedral-like aspect of the interior of the church; they are also most desirable features externally, forming, as they do, a break in the long horizontal lines of roofs and parapets. By means of these extensions there is ample room beneath for the chapter-house and complete vestry accommodation, which, owing to the natural slope of the ground, will be well lighted. Access to these vestries from the church is obtained by a wide staircase on the north side, and there is also an external entrance to them on the south side. The present vestry might be used for a bishop's vestry or for other purposes. The extension of the chancel admits of the altar being moved one bay eastward. By this means considerable additional space is obtained.

BEHIND THE ALTAR,

and dividing the choir from the chapel, would be the altar screen. Under the arch on the north side of the sanctuary I propose to place the canopied tomb with the recumbent effigy of the late bishop, where it would occupy the position often filled by the founder's tomb. On the south side, opposite to this, would be the sedilia and credence. The present arrangement of the stalls and choir seats is very unsatisfactory. I propose to take away the existing moveable front row of seats and bookboards at which the choir sit, and so expose to view the whole of the canons' stalls, a large portion of which are old. By this means a great effect of spaciousness will be obtained. Accommodation for choir men and boys would then be found eastwards of the old stalls in a block of stalls three rows deep on either side. This would give room for a choir of 34. The present altar might be placed in the chapel, and its place taken by a new one of a size suitable to the cathedral. It is most desirable that the bishop's throne be replaced by one more in harmony with its surroundings. The cost of the alterations and additions, and the works consequent on them, may be put down approximately as follows:—Structure, £13,500; heating and lighting, £600; bishop's tomb, including recumbent effigy, £2500; stalls for choir, £400; altar screen, £1500; sedilia and side screens, £800; marble floor for sanctuary, £350; bishop's throne, £650; altar £100; chapel fittings, £300; total, £20,700."

Men who Build.

No. 52.

MR. WILLIAM LEIPER, R.S.A., F.R.I.B.A.

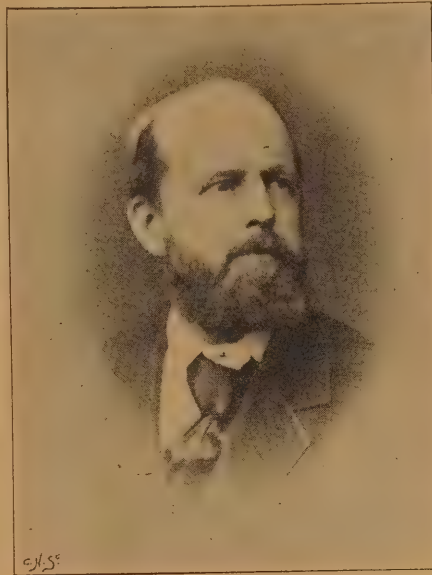
THE London whirlpool has not yet, at least, drawn into itself all the talent of the British Isles; still throughout the country there are men of parts who are content to turn their backs on the allurements of the metropolis, artists who find, among their home surroundings, inspiration and opportunities sufficient for their needs, and Scotsmen, unlike Dr. Johnson's Boswell, who can help coming from Scotland. Of such is William Leiper, R.S.A. and F.R.I.B.A.

Born and educated in Glasgow, he served his apprenticeship as architect with Messrs. Boucher and Cousland there. After spending a short time in the offices of Mr. Pearson, R.A., and Mr. Wm. White, F.S.A., in London, and a longer period in Dublin, drawing details for and superintending the erection of Findlater Church for Mr. Heaton, he settled down while still a very young man to practice his Art in his native city. This was about 1860—dates are not a strong point with Mr. Leiper, as he himself confesses, and his work is sufficiently free from a pedantic archaeology to permit him, without the charge of inconsistency, a certain freedom in this respect. The first start was made in partnership with another architect, but the arrangement was of short duration, for then, as now, no doubt Mr. Leiper's art was of too personal a nature to submit to the trammels of co-partnery.

Dumbarton Town Hall was the first joint-work of note, followed by Dowanhill Church, Glasgow, though for the latter the responsibility and credit are entirely Mr. Leiper's. This, a noteworthy first effort, was the forerunner of a series of fine churches for which Glasgow and Scotland are indebted. Through it, also, his work early obtained recognition in the wider world of Art. In order to show the progress of British Architecture at the Paris International Exhibition of 1862, the Royal Institute, at the instance of the French Société, sent over a collection of drawings and photographs, and among those selected from the large number sent in from all over the country, Dowanhill Church was one. This mark of appreciation, it may be readily under-

stood, was a valuable incentive to the young architect at that time, and remains even at the present day a source of pride now that its recipient has become himself one of the "masters."

Those were the days of the Gothic Revival, and for Leiper, as for all the earnest students of his day, every problem in Architecture was



of necessity referred to the practice of the fourteenth century. The influence, already seen in the Dumbarton Hall and Dowanhill Church, was also paramount in the first of a long succession of interesting houses built immediately after, that for Provost David Corsar at Arbroath. Dowanhill Church was followed by others at Brechin, Lanark, and Whiteinch (Glasgow); but, while the Gothic style remained supreme in Mr. Leiper's ecclesiastical work, we find him at the same time breaking away from it in the mansion house of Cairndhu, Helensburgh, built for Mr. John Ure, and in the Partick (Glasgow) Burgh Hall, both in the *Francois premier* style. Of the same period is the mansion house of Cornhill, Lanarkshire, designed for a promi-

nent supporter of the Dowanhill Church—Mr. Alex. Kay—who had there learned to value the architect's ability.

Mr. Leiper's next notable contribution to the Architecture of Glasgow was Camphill Church, an extremely fine design both as regards the exterior and interior, though hurt somewhat as the latter by the gallery round three sides, which, at the time it was built, was regarded as an essential feature in the arrangement of a Presbyterian church. Yet withal, and as the illustrations will show, the architect has been able to reconcile with the utilitarian side of the "Nonconformist conscience" the fine proportions, the dignity, and the ecclesiastical character of the churches of the earlier faith. The tower and spire are of the type of St. Pierre, at Caen, whither Mr. Leiper made a special journey at this time in order to study in detail the original. In the seventies a new influence begins to appear in our architect's domestic work, and one which has ever since largely characterised it, that of the Scottish Domestic—or Baronial, as it used to be called—Architecture of the seventeenth century. "Colearn," Auchterarder, shortly followed by "Dalmore," Helmsburgh, was the first of this type. In the latter may be recognised the work of the mature artist, able to seize and reproduce the spirit of the old work, its picturesque skyline, combined with its dignified simplicity of wall spaces, while at the same time adapting it without loss of effect to modern requirements in matters of ample light and a liberal use of bow-windows, a very different thing to the lover of Scottish Architecture from the affectation of crow-steps and meaningless turrets which the southern designer, let loose in the north, thinks it necessary to adopt, as he does the kilt, when on a temporary visit to the "land of the mountain and the flood." Of the same period and similar in treatment is the design for "Earnock," Lanarkshire, never, unfortunately, carried out, but of which the fine pen-and-ink perspective from Mr. Leiper's own hand is now hung in the Scottish National Gallery as his diploma drawing on his election to the R.S.A.

About the same time, too, or a little earlier—1872—Mr. Leiper built his own charming little house at Helensburgh, of which some characteristic sketches have been published by Mr. Raffles Davidson in his series of "Architects' Houses," and in which he still lives surrounded by his curios and pictures in



HYNDLANDS ESTABLISHED CHURCH GLASGOW: INTERIOR. WILLIAM LEIPER, ARCHITECT.

quiet bachelor seclusion. The first church had been won in competition, and from it recognition and work had followed, so that with that—to some minds—pernicious system of selection our subject could scarce afford to quarrel; but about 1875 a series of disappointments and acts of injustice so harassed him as to make him throw up Architecture, and retreat to Paris in order to study painting. The work in the sister Art then produced showed, as might be expected, marked ability; but, fortunately for the profession of Architecture—which cannot afford to lose its artists—better counsels and an invitation to take up some important work prevailed, and Mr. Leiper once more returned to the old paths. The work referred to was the designing of the "Palace" portions of the ill-fated yacht *Livadia*, built for the Emperor of Russia, but in which Mr. Leiper found ample opportunity for displaying his wonted skill in a new direction.

To describe or even catalogue all the works which followed is impossible in a short notice. Of houses, the most notable have been Kinloch-Moidart (Invernesshire), Moredun (Paisley), Ruthven Tower (Perthshire), with, the largest as regards plan at least, Kelly House (Renfrewshire). Also, in return for the many incursions of the Southerner already referred to, a delightful stone house near Shrewsbury, Rayton Park. Of later churches, the most important has been Hyndlands (Glasgow), an extremely dignified and refined design in red stone and red-tiled roof, with nave, aisle, and square-ended chancel, the large traceried windows and the treatment in other respects based upon Pluscardine Priory.

Within recent years Mr. Leiper's talents as an architect have been displayed in two styles of building, till then outside his ordinary practice—those of the factory and the office block. The opportunity offered him by the fine taste and liberal expenditure of Mr. Templeton, of James Templeton and Co., carpet manufacturers, is not one often to be had by the factory architect, but, at the same time, few could have taken advantage of it as Mr. Leiper has done. The style adopted is Venetian Gothic, the materials Ruabon red brick and terra-cotta, with red stone dressings in the lower stories, glazed terra-cotta of varied colours in the window-shafts, Rust's vitreous mosaic in blue, white, and gold in the tympana of the arches, with the deep frieze, rendered possible by the uppermost story being roof-lighted, in a chevron pattern of yellow and green glazed bricks from Alloa. The building, facing west, and visible from far and near owing to its magnificent open site on Glasgow "Green," when seen either under grey skies or lit up by the afternoon sun, offers a perfect feast of colour to the east-end toilers and a not unfitting indication of the "orient-dyed" fabrics produced within its walls.

The block of office buildings erected by the Sun Insurance Company to house its Glasgow branch is also favoured with a fine site—at the corner of Renfield and West George Streets—and if not so homogeneous and dignified in general conception as the factory it is full of beauty in detail and effective in sky-line. The style offers a good example of Mr. Leiper's treatment of Renaissance in which the influence of many national developments is visible, but in the essence fused and rendered individual. The building is of red stone, while in the interior of the Company's public office a large use is made of coloured marbles in wall panelling and fireplace. Mr. Leiper is still in the hey-day of his powers and full of work; to him, with the buoyancy of the true artist, every new house is to be "the best he has done," and when asked by his interviewer for some "high-sounding theories" to put before the readers of the BUILDERS' JOURNAL, could but characteristically reply that he would offer nothing of the sort, "for" (so giving himself away despite himself) "an hour's work is worth a week's theorising." The house at Stirling, now in process of building, his "best thing yet," shows him still faithful to the old Scottish domestic.

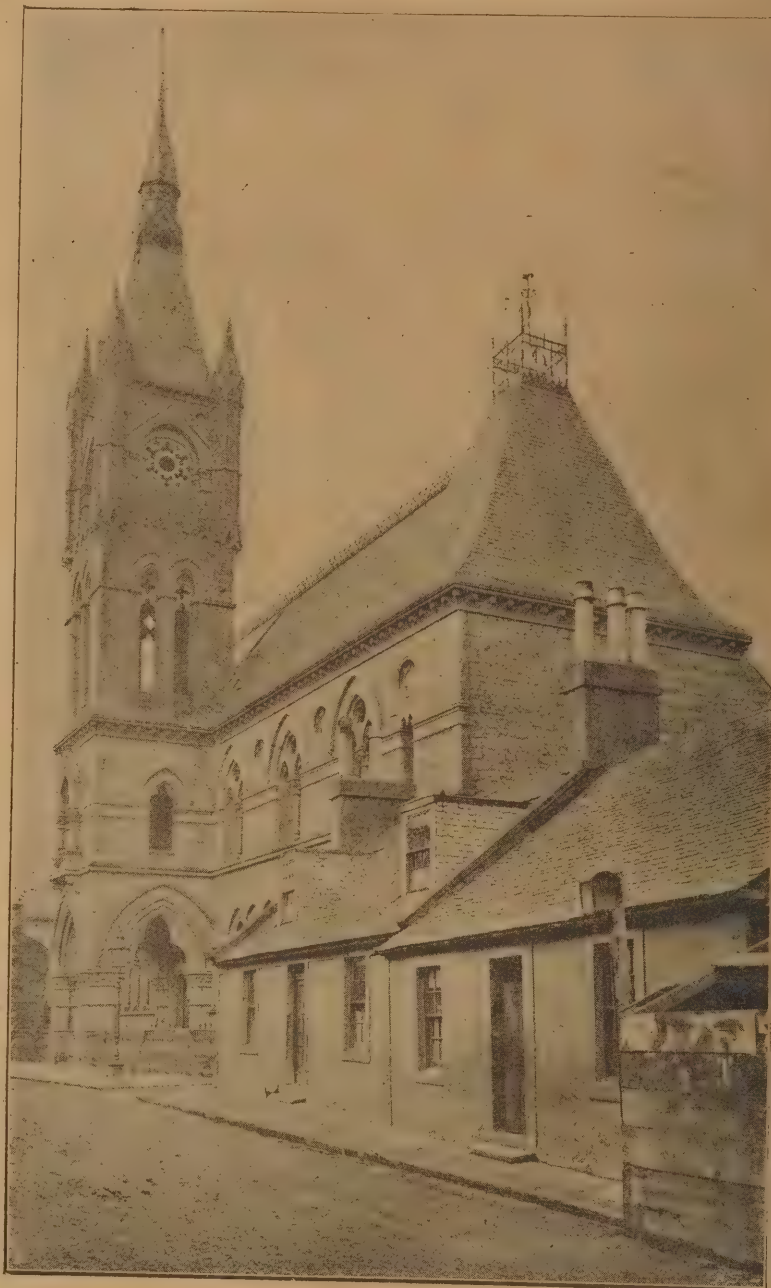
The fine sense of colour and power of design in the use of both figure and ornament shown

in the interior decoration of his own churches and houses has procured for Mr. Leiper the opportunity of doing a considerable amount of purely decorative work. For the stained glass in several churches he has produced the cartoons. The decoration of the St. Andrew's Hall and of many smaller buildings and, quite recently, that of the banqueting hall in the Glasgow Municipal Buildings have been carried out with fine results under his direction.

Our architect is not much of a man for "meetings" or talk, and no seeker of office, but his interest in Architecture and the doings of the brethren is keen. In the early days of his practice he joined the R.I.B.A. as an Associate, sponsored by Burgess and Pearson,

THE ART AND ARCHITECTURE OF PERSIA.

THE origin of the Art and Architecture of the ancient Persian Empire has always presented a problem of great interest, but, at the same time, of considerable difficulty to Orientalists. Two features were especially difficult of explanation, and upon these no light appeared to be forthcoming: Ever since the days when Niehbur and Kerr Porter first made known to Western archaeologists the wonders of the palaces of the Achaemenian kings at Persepolis, students have pondered



DUMBARTON TOWN HALL AND ACADEMY. W. LEIPER, JOINT ARCHITECT.

while in 1881 he became a Fellow. Appreciation and honour from brothers in Art has come to him in another direction, for in 1891 he was elected an Associate of the Royal Scottish Academy, and advanced to the dignity of full membership in 1896.

HERR ERNST HEGENBARTH, a young Vienna sculptor, has completed a bust of Mark Twain. It is intended for this year's Austrian Jubilee Exhibition. The same sculptor has also made a bust of the Emperor, who sat for it several times.

over the sources from which the builders derived their inspiration. That they were the products of indigenous ideas was in every way to be denoted. The earliest of the edifices was erected by Darius Hystaspes, and cannot precede B.C. 500. Yet, says the Echo, in an article on "Persian Archaeology," the Architecture presents many resemblances to the work of the Assyrians in the palaces of Sennacherib and Assurbanipal, which had been destroyed nearly a century before. While the resemblances are most apparent in such features as the winged bulls, and the throne

on which the Persian monarchs are seated, yet there are divergencies in style, especially in the proportions observed, which indicate that the conceptions were transmitted, not by a direct knowledge of Assyrian work, but by an intervening medium. That link was supplied by the Art work of the artists who decorated the palaces and temples of the old Armenian kingdom of Biana or Van. This ancient kingdom, which had derived its Art and letters directly from Assyria after its conquest in the middle of the ninth century, B.C., survived its tutor, and remained independent until the early part of the reign of Darius Hystaspes, when it became one of the satrapies of the great Persian Empire. It was the sight of the great rock inscriptions of Argistis and other Vannic monarchs that inspired Darius to carve the great inscription of Behistun, the Rosetta stone of cuneiform literature. Recent research has afforded a solution of the difficulty regarding the sources from which the Persians obtained their reflection of Assyrian Art as well as their alphabet. Another feature appeared still more difficult of solution. The Architecture of

THE PERSIAN PALACES

is remarkable for the extensive use of the column, and above all for the columned halls or massive canopies supported upon regularly arranged groups of columns. These constructions are described in the inscriptions as *apadanas*, and were peculiar to Achæmenian palaces. They are found in the palaces of both Darius and Xerxes at Persepolis, and consist of groups of four, six, or more columns arranged in groups corresponding to the number of columns, so as to form a perfect square. This form of open-air throne room the Persians transmitted to India, where many fine examples are known, but until quite recently its origin was unknown. Until their contact with the more western and stationary civilisations, the Persians were like the majority of the tribes who have come forth from the table land of Iran tent-dwellers, and the *Apadana* is, no doubt, a modification of the chief *darbar* tent. This explanation is, however, more or less applicable to all early forms of the house. A discovery made by the American expedition, which for five years has been exploring the ruins of the

ANCIENT CHALDEAN CITY OF NIPPUR,

one of the oldest cities in the world, has unexpectedly furnished the source of the peculiar Persian construction. The ancient city of Nippur was built on either bank of a large canal, formerly navigable to the Persian Gulf, now known as the Shat-el-Nil. On the east side was the second quarter round the great temple of Mul-lil, or the older Bel, while on the west were groups of houses in layers, one above the other in stratified layers, from the time of the Seleucidae until the lowest about B.C. 3000. In one large mound here the explorers seem to have struck upon the palaces and residences of some of the princes and wealthy citizens. On the upper surface the explorers found the remains of several Jewish houses, in which several of the curious incantation bowls were found, and the remains of what appeared to be an apothecary's shop, for mortars and a number of bottles sealed with bitumen and filled with various substances were found. These have been removed to Constantinople. Digging through a deep stratum of burials, mostly Babylonian, the excavators came upon

A REMARKABLE EDIFICE.

The first indication was the shaft of a massive brick column nearly a metre in diameter. As such objects are rare, though not unknown in Babylonia, it excited the curiosity of the explorers and work was continued. The first building cleared proved to be a court of columns about 46ft. square—it is important to notice the square form. The pavement was composed of baked bricks of small size, and was 6ft. thick, evidently intended to support some massive building. Around this on three sides ran decorative brick edging, upon which rested four massive brick columns, similar to that described above, resting on square bases bedded deep into the pavement. The corner pilasters

were partly round and partly square. The columns were composed of layers of six bricks, each forming a segment of a circle, with a truncated apex fitting in the centre, and the hollow cone was filled in with rubble. The columns resemble those found by M. de Sarzec at Tel-lo, which bear inscriptions of Gudea, B.C. 2800. The one at Nippur are, unfortunately, not inscribed. On the north-east side

A NUMBER OF OTHER CHAMBERS

were excavated, and the building was surrounded by a massive enclosure wall. The entrance to the whole seems to have been by a porch on the north side. The building was 34ft. below the surface, and on the old Babylonian strata. The question of date was still unsolved. Close to the palace wall, however, a quantity of pottery and glazed vases of the Cossean period, B.C. 1260, was found, and later Mr. Haynes found a large number of tablets stored close by, dated in the reign of Nazi-Murruttash, a Cossean king, who reigned B.C. 1284-1288. These tablets relate to temple and palace revenues, and the place where they were found was no doubt the Record Office of the period. No one can doubt that here we have the origin of the columned *apadana* of later Persian period. The Cosseans were an Elamite tribe, living in the very district where Cyrus, centuries afterwards, ruled. They existed until the later days of the Babylonian Empire. Layard pointed out many years ago the close resemblance between the houses of the Bakhtiari and Yezdis inhabiting the mountains of Kurdistan and Luristan, and there can be little doubt that they, like the columned halls of Darius and Xerxes, are a survival of the old wooden columned reception halls of the Cossean kings of fifteen centuries before the Christian Era. Another of the difficulties of Persian archaeology is thus removed.

PAIGNTON main drainage works were contracted for in the sum of £5000. This has been exceeded by nearly £2000 for "extras."

ART AT EDINBURGH.

ADDITIONS TO THE MUSEUM.

AMONG the principal additions to the Art section of the Edinburgh Museum of Science and Art during the past year are the casts of the colossal statues of Mausolus and Artemisia, which surmounted the Mausoleum at Halicarnassus. They are now set up at the west end of the Great Hall alongside the Ionic column from the same monument, and together serve to give a good idea of the style of both its sculpture and Architecture. A few casts from the marbles, excavated by Sir R. Murdoch Smith during his expedition to Cyrene in 1860-61, and of which 148 were presented to the British Museum, have been added to the collection of classical sculpture. The most important is the portrait bust of the Emperor Antoninus Pius, which was found buried in the debris accumulated on the floor of the Temple of Apollo at Cyrene. This bust was recovered fortunately without a break or a scratch, and gives a perfect portrait of the Roman Emperor. Among the other casts are the Hermes, found some years ago by the German explorers at Olympia—one of the most perfect examples of the work of Praxiteles; the Demeter from Cnidus, probably also by the same sculptor, and which, from its combination of the grief of the mother with the dignity of the goddess, has been happily termed "The Greek Madonna;" and the bust of the bearded Zeus, one of the most treasured marbles in the British Museum.

GOthic WORK.

There is a really wonderful cast of a portion of the re-table in the Church of Notre Dame at Lombeck, in Belgium. The subject is the "Marriage of the Virgin," and the whole work was executed probably by Pasquier Borromans in the first half of the sixteenth century. The figures of Joseph and Mary, the high priest, and the assembled friends, are set under a great spread of Gothic tracery, the under-



ENTRANCE FRONT, "KELLY," SKELMORLIE. W. LEIPER, ARCHITECT.

cutting of which shows not only the extreme expertness of the carver, but also the cleverness of the moulder, who has reproduced its intricacies so perfectly. The model of a portion of one of the rooms from the "Paradiso," of Isabella d'Este at Mantua, is still in progress. The richly ornate ceiling, which has been reproduced two-thirds the size of the original from studies made at Mantua, has been gilded, and now awaits the finishing touches of colour designed to bring the ornament into relief. The pictures by Andrea Mantegna and Lorenzo Costa, which formed the frieze of the wall, though now no longer at Mantua, have been found in the Louvre, and have been reproduced on a scale to fit the present model, so that, when finished, this restoration will bring together the scattered parts of Isabella's charming apartment, and show the camerino more nearly resembling

LIVERPOOL'S NEW POST-OFFICE

IN its external decoration the large post-office now being erected in Victoria Street follows the architectural traditions of the Italian Renaissance style. There are few buildings in Liverpool to record this fashion, and the most perfect—as a copy—stands in St. James's Cemetery, a fitting locality for a fragment of a dead style. But the building under immediate notice is one of many that during latter days have taken up the thread of development where it was ruthlessly broken off when our grandsires took to Doric columns and to tall hats. It may be fairly called English in the design of its general masses and in the fact that the architect has not, in his admiration for the Italian style, gone out of his way to slavishly reproduce it. But in

device one of the four national emblems of the United Kingdom. Their attitudes have a massive dignity in keeping with their structural character, and although, from an æsthetic point of view, caryatides, even the best of them, may be regarded as

DEBATABLE ELEMENTS OF CONSTRUCTION,

these figures amply vindicate themselves by their imposing effect. So much cannot, in justice, be said for the two smaller figures of boys which support the tympanum over the main doorway. Sturdy and strong in character, and unquestionably well modelled, they are nevertheless likely to suggest to the imaginative temperament an inherent unfitness in themselves to support their heavy superstructure. The records of sculpture point to many a similar incongruity wherein a figure has been beautiful in itself but ill



TEMPLETON'S CARPET FACTORY, GLASGOW: FRONT. WILLIAM LEIPER, ARCHITECT.

what it was in her day than can now be seen by the visitor to her Mantuan Palace. The Edinburgh portion of the

PEYRE COLLECTION OF FRENCH FURNITURE AND WOODWORK,

although acquired some time ago, has been detained until this year for exhibition at South Kensington. It has now reached its permanent home in Edinburgh. The addition of upwards of seventy specimens of woodwork has necessitated a re-arrangement of the whole of the collection of furniture, and its proper display has been unavoidably postponed by the delay in the completion of the structural alterations of the building. The large porch of the tomb of Sheikh Salim Chishti, with other specimens of Indian Architecture, have been moved from their former position on the other side of the Great Hall, and several additions of specimens of Moghul Art, notably a cast of the elaborately decorated tomb of Akbar—work of the early seventeenth century—have been made to this section during the year.

the sculptured ornaments that plentifully embellish it, there still lurks a strong Italianesque flavour, especially in the

FIGURES ON THE MAIN FACADE

fronting Victoria Street. The conception of these figures was, of course, due to the architect, but they were all modelled by a young sculptor—Mr. E. O. Griffith. In the designing of these figures, Mr. Griffith was, says the Liverpool Mercury, confronted with a difficult task, of which he has more than satisfactorily acquitted himself. His chief problem was to preserve in them a classic character suitable to the building they were to adorn; to give each an allegorical meaning; to present in each a national type, and withal not to depart from their prime purpose as ornamental adjuncts by bestowing upon them anything like strong individuality. A sufficiently formidable array of limitations, truly! The most important of the figures, in point of size, are the colossal caryatides on the second floor in the centre of the main front. They stand in two pairs, hand-in-hand, supporting the cornice. Each figure is flanked by a shield bearing as a

adapted æsthetically to the office of constructive support allotted to it. The remaining figures are open to no such objection; they support nothing, but rest, graceful and beautiful ornaments, upon pedestals of honour designed for their special occupation. Over the principal door are two distinctive figures, representing respectively Commerce and Navigation. In all of the ten smaller female figures which line the middle cornice of the front of the building there is the same impress of artistry in the design of the conventionally classic garments. These latter figures typify the British colonies.

It is reported that the Belgian Government has given contracts for £5,593,000 to three associated Belgian firms for the new harbour works at Ostend.

A FOUNTAIN has been presented to Manchester by an anonymous donor; it has been erected in Albert Square from designs prepared by Messrs. Thomas Worthington and Sons, architects, and has been formally handed over to the City Council.

PICTISH CASTLES IN SHETLAND.

ON the coast of Shetland there are the remains, in many cases only the sites, of ancient buildings, which of late years have attracted considerable attention. Many of them were large buildings, lofty, circular, of immense strength, and filled, tier above tier, with small rooms, to which a winding-stair gave admittance. Much has been said and written about the purpose for which they were built, and the people who built them. But the period of their erection has receded so far into the remote past, and the people who built and occupied them have so completely vanished that, says *The Scotsman*, not a local trace of either purpose or people remain, except a faint tradition that they were a people of small stature.

THE BROCH OF MONSA

is now the only one remaining in what may be called a state of ruinous preservation. It appears to have been the last broch erected in the islands, and was in a perfectly habitable condition when some of the other brochs (or castles) had fallen into decay. The diameter of the circular site is a little more than 50ft., and the building itself is constructed of schistose stones nearly uniform in size and strongly built without cement. The building rises to the height of 40ft., bulging from its foundation and drawing narrower towards the top, when it again enlarges in a bell-shaped form, making the top overhang the portion of the wall below, thus making the wall most difficult to scale. The entrance door is so low that a person can only crawl through it on his hands and knees, and the wall is of great thickness. The diameter of the area within the walls is about 20ft., and the walls are perforated by three or four vertical rows of holes, numbering from eight to eighteen in each row, and designed to give light and air to their respective compartments. Above the ground floor a door leads to a stone stair which communicates with the rooms, and the rooms communicate with each other. The shell of the broch consists of two concentric walls divided into compartments. The rooms are low, but a few of them rise to the height of 5ft. The building was evidently skilfully planned, and

STRONGLY BUILT FOR DEFENCE.

and in those early days who could the dreaded maritime assailants have been? Defence seems to have been the absorbing aim. The rooms between the walls afforded concealment for the women and children, and places of security for valuables and provisions. The entrance door could only admit one person in a crawling position, and the walls were so constructed that they could not be scaled. A few of the brochs were in such a preserved condition that the Scandinavian chiefs found accommodation in them at the commencement of the Norse period. The Broch of Ester, on the north-west corner of the mainland, must have been in its day one of the most imposing structures in the islands. It was built near the sea and close to a small loch and burn from which the locality derived its name. There is deep water close to the rocks, along which a heavy swell from the ocean always runs, and for a considerable distance there is not the smallest creek where a boat can land. The castle stood towering alone on a long, unbroken line of coast. Before it was removed, after 1840, it formed a huge, unshapely mound of stones, and yet, unless the stories handed down were purely imaginary, it was inhabited by human beings, living apart from their neighbours, as late as 1715. Its size had been such that it furnished stones for building a park dyke 6ft. in height and a mile and a half in length, and the materials are not yet exhausted. Many of the stones were of such size that they had to be broken in pieces before they could be removed. Like Monsa, it was circular in form, and had

CONCENTRIC WALLS

with compartments between them. Traces were found of the winding-stair leading to the

various rooms, and the underground passage leading from the area inside the door to a place some distance from the building, was easily traced. As the excavations went on, several articles, such as querns, knocking-stones, stone mallets, hatchets, corn-hooks, knives, weapons, heaps of shells and fish bones, bones of sheep and poultry, and of oxen of a large size, were found. There were also found a rude kind of pottery, and various other articles which, in the present day, would be considered of much value. Unfortunately the landlord, though a life-long student, was not interested, and the workmen looked on the finds as unhallowed things, and threw them into the sea. A similar fate befel the articles found in the ruins of all the brochs when the stones were removed for building purposes. There were between



TEMPLETON'S CARPET FACTORY, GLASGOW:
SOUTH END. W. LEIPER, ARCHITECT.

twenty and thirty brochs in Shetland. Several on the coast, and all in the hills and on the holms in the lochs, were of small size, but the whole were built on the same plan, and with the same precaution. Some of the hill brochs must have fallen into decay when the islands were colonised by the Northmen, because Norse names, signifying a large cairn or heap of loose stones, were applied to them. To give an opinion as to the builders and occupiers and date of building of the brochs is to tread on debateable ground. Very seldom will two men who have given attention to them be found to agree. The materials on which to found an opinion are too scanty. The buildings themselves furnish the only data. Their builders must have been men of low stature, of great personal strength, foreseeing, skilled builders, considerably advanced in civilisation, and liable to sudden attacks from dreaded and powerful enemies.

IN DANGER OF DEMOLITION.

POSSIBLE FATE OF THE CRYSTAL PALACE.

THE Crystal Palace, in all its magnificence, stands in real danger of demolition. As a private enterprise it is, as is well-known, unremunerative, and the fact that the owners are ready to sell it, together with the appropriateness of acquiring the Palace as national property in commemoration of the Queen's Jubilee, has fostered a movement for its purchase from private hands. "The municipal authorities throughout England and Wales will," writes Mr. C. William Tagg, clerk to the Camberwell Vestry, "shortly have before them copies of resolutions unanimously adopted by a conference convened by the vestry of Camberwell in favour of the Government acquiring the Crystal Palace. The Palace, which has for over forty years been to all intents and purposes a national institution, is not remunerative as a private enterprise, and runs the danger of being shut up unless some public assistance is obtained. It was felt that its public acquisition would be a fitting memorial of Her Majesty's reign, as the buildings were originally erected for the Great International Exhibition held in 1851, specially associated with the memory of the Prince Consort. Before referring to the progress of the movement for purchase, and the sympathy which it has awakened, permit me to give a few facts about the present position of the Palace. Its position as a great national centre for pleasure, and one of the best places for popular sports, is well known. It is

THE ONLY BUILDING IN THE COUNTRY capable of holding huge national demonstrations. National temperance assemblies are sometimes held at it, attended by 50,000 people, and it has been the scene of the annual reunions of co-operative and friendly societies and other organisations. As a place for holding exhibitions and shows it is unequalled, while it is the only building in the country large enough to hold great choral festivals, and has therefore been chosen as the scene of the Handel Festival. As a centre of entertainment it draws visitors from all over the country. While its usefulness in these directions is generally known, it is not so well recognised that the Palace carries on an important educational work. As to its general utility as a national institution, I cannot do better than quote the author of 'John Halifax, Gentleman,' who in a work published in 1888,

Concerning Men, and other Papers, under the title 'Story of an Old Friend,' makes the following remarks with reference to the Palace: "Does the nation understand what it would lose were the Crystal Palace to be swept away, and how much both upper and lower, i.e., educated and uneducated, classes are interested in its preservation? First the former; nowhere in England is there such a fine collection of casts from foreign antiques, many of them the only casts ever taken, and of curious mediæval monuments, artistic and architectural. Some of these, spread about the dim and

SELDOM VISITED SIDE COURTS,

would repay an artist for weeks of study. Then there is the School of Art, Science, and Literature, now in its twenty-seventh session, each session having counted at fewest, 500 students. During the past fifteen years no less than 9000 students, guided by thirty-three instructors, have attended the classes. The School of Practical Engineering, established in the grounds in 1872, has educated 900 young men, and is still advancing, paying its own way, and giving complete satisfaction. There is also . . . a reading-room, a library for reference and lending, under certain restrictions; Oxford and Cambridge local examinations, and daily classes of all sorts, from the higher education of women down (or up) to cookery or dancing. All these educational institutions are worked at a money profit, and do not cost the Company anything, while the Art and Science collections thus utilised are in some sort an endowment. Finally, where can the true musician, be he



RAYTON PARK, NEAR SHREWSBURY. W. LEIPER, ARCHITECT.

professional or amateur, find such music, not only on Saturdays, but every day and all the year round, as he finds at the Crystal Palace." I may state that the capital of the Company is £1,557,718. It is not suggested that the shareholders should be bought out, and there is no desire on their part to make the sale a commercial transaction. They are prepared

TO SELL THE PALACE

for half the capital of the Company, but, of course, no negotiations have been entered into. There is, however, the greatest danger (the certainty, I might say) that, unless something is done, the magnificent buildings will be pulled down, and the site sold for building purposes. A conference has been held between local authorities in London, which showed that they are expecting a great deal of sympathy for the acquisition of the Palace. A deputation waited upon the Lord Mayor at the Mansion House, suggesting a national conference of municipal authorities to consider the proposal. His Lordship consented to call such a conference early this year. As to where the money should come from for the purchase of the Palace, and by whom it should be managed, is a matter for future discussion."

THE great fortifications which surround Paris and give it the appearance of a walled and moated mediæval city have been a military fetish for many years. But the walls have long since ceased to serve any useful purpose—military or otherwise—except to act as convenient barriers for the octroi department. Yet not until ten years after the war was anyone bold enough to suggest the demolition of the so-called fortifications, and it is only now that the Minister of War has decided to remove part of them. General Billot has prepared a project, and sent it to Parliament for demolishing the walls on the west side. This is only a half measure. The late Director of Public Works—M. Alphand—had a grand scheme for removing the whole of the fortifications and encircling Paris with a great boulevard 200ft. wide, which would have been an open space in itself. This scheme only continued the evolution of the city. The original Paris was confined to the little island in the Seine of la cité. It was a natural stronghold in mediæval times. When the city extended, the first wall was on the site of the inner boulevards. The outer boulevards mark the site of a further extension. The existing walls prevent Paris from extending. Over 6000 acres of valuable land are wasted with the useless walls, and more than half this land would make valuable building sites, which would nearly pay for constructing a new boulevard.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

January 12th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Lyric Club of the A.A. held its eleventh cinderella dance at the Holborn Restaurant on Friday evening. The function was a big success—that goes without saying, for the A.A. is as thorough in carrying out the social side of its programme as it is in dealing with the educational side. The Architectural Association shows no inclination to neglect what has always been an important factor in its success, and what was one of the primary reasons leading to its foundation—the meeting together for friendly intercourse and mutual help. The Lyric Club does much to maintain the freemasonry of the Association, and it was the means of bringing together a great array of A.A. talent for the most part of the younger order, at the Holborn Restaurant, on Friday. The meeting was bright, if not brilliant, and was carried on with that zest which one expects from the ardent A.A.

It is announced in the current number of Saint George, the journal of the Ruskin Society of Birmingham, that Mr. W. G. Collingwood, M.A., has recently received a letter, of which the following is an extract:—"I am glad to say that Mr. Ruskin's health is much as it has been during these later years. He still takes his daily walks, sees his personal friends, and spends much time in reading. But it does not seem to be understood by the public that this comparative health depends upon his being kept from all unnecessary work. He directs his own business, but is obliged to decline correspondence, and cannot reply to the many letters which still come asking for

his intervention in public matters or for private advice and assistance."

CARDIFF, which is about to erect for itself a new Town Hall and Law Courts, is proposing, in connection with its new tramways scheme, to repave from kerb to kerb the streets to be traversed by the tramways, as well as some other thoroughfares, with Australian hardwood blocks, at a cost of £261,000. This decision has been arrived at after a consideration of the results of experimental wood-paving already carried out in the town. More than that, the Cardiff people are going to import the hardwood direct from the West Australian plantations, erect machinery for cutting up the timber into blocks, so saving the expense of middlemen, and by this means cultivate an import trade in the Australian hardwood, making Cardiff an important centre for the distribution throughout England of the paving blocks.

THE Council of the Royal Academy has issued notices to the members requesting their attendance at two general assemblies for the purpose of electing no fewer than seven academicians and associates. The first assembly, at which two academicians and two associates will be chosen, is to take place on the evening of January 19th, and the second, for the election of two academicians and one associate, will be held a fortnight later, on February 2nd. For the academicianships, Mr. Gregory, Mr. Swan, Mr. Seymour Lucas, and the off-defeated Mr. Leader are still in the running, but a new favourite has recently appeared in the person of Mr. Ernest Waterlow, who, three or four weeks ago, defeated Professor Herkomer by a single vote in the contest for the presidency of the Royal Society of Painters in Water Colours. Apart from his qualifications as painter (says the Chronicle), Mr. Waterlow is extremely popular among his fellow artists, and personal popularity is no small factor in the determination of an Academy election. Another landscape painter, Mr. Alfred East, is likely to secure an associateship, but the first of the minor honours is almost certain to fall to Mr. La Thangue, one of the most "coming on" of our younger painters, who was defeated by a very small majority at the last election of an associate in January, 1897.

A BILL to incorporate the New Cross and Waterloo Railway Company has been deposited in the Private Bill Office. The proposed Company seek power to construct an underground electric railway, commencing at a point in Old Kent Road near the bridge carrying the London, Brighton, and South Coast Railway over that road, and terminating under Waterloo Road, near the point where the South Eastern Railway crosses that thoroughfare. The Bill contains provisions prohibiting the construction of ventilators, or other openings, in any road or footway, and also the exhibition of advertisements upon any part of the works.

THE West Riding Council propose to erect an asylum at a cost of £77,000 at Scaleborough. The plans are before the Lunacy Commissioners, the drawings having been prepared by the West Riding surveyor. The new building will provide for 174 patients, and will comprise administrative, sick, infirm, and acute blocks, with lavatories and all the latest appliances of scientific and medical research, a lecture-room, recreation-room, billiard-room, and special apartments for ophthalmoscopic, physiological, and bacteriological work.

OF the various schemes suggested for the amendment of the burnt-out area in Cripple-gate, but one has already been tentatively adopted by committees of the Corporation and the London County Council, which latter body will in all probability, in the event of its final adoption by the respective bodies named, contribute half the cost of the improvement. It is an essentially Metropolitan improvement, which has been advocated for the past twenty-five years. It provides for a main thoroughfare, 60ft. in width, extending from Fore

Street to Little Britain, and leading right and left through the open space facing St. Bartholomew's Hospital to Giltspur Street and High Holborn, thus forming a continuous main thoroughfare from Hyde Park in the west of London to Bishopsgate Street in the east, and avoiding Moorgate Street, Cheapside, Cannon Street, Lombard Street, and contiguous thoroughfares. That some such scheme has been in contemplation for some years may be gathered from the fact that five years ago the premises in Old Broad Street and Wormwood Street were set back for the widening of those thoroughfares. It is also the intention of the Bridge House Estates Committee to widen that part of London Wall extending from Blomfield Street to Moorgate Street. In course of time, therefore, the thoroughfare will extend eastward as far as the Tower Bridge, and the improvement will be one which cannot fail to give the greatest satisfaction to Londoners. This in reality is the aim of the promoters of the scheme, who realize that such a thoroughfare would not only greatly relieve the congestion of traffic in the Strand, Fleet Street, and Cheapside, but provide a much shorter route for the traffic. It is, of course, an improvement which must be gradually effected. But with the widening of Jewin Street, which might be commenced at once, and the construction of a new and continuous thoroughfare from the Aldersgate Street end of Jewin Street to Little Britain—for which an Act of Parliament would be required—a new communication would be opened between the east and west of London, which would obviously be an immense advantage. This scheme does not touch the question of the narrow and dangerous streets destroyed by the fire last month.

"ANYTHING more deplorable than the condition of the streets of London during the variable temperature we have experienced within the past fortnight," writes a correspondent, "it is difficult to conceive. I notice that indignation meetings are held, and protests made against the use of asphalt, and the only alternative paving suggested seems to be wood. We shall soon have the estimates of paving for the coming year laid before the various vestries. Why, then, may we not have a fair trial given to the material of the Cork Pavement Company, which has lately been laid in Basil Street, Chelsea, besides several other districts in London, and which, I am told, is a delightful pavement to drive over, possessing as it does the qualifications of being practically noiseless, entirely non-absorbent, and therefore quite sanitary? Then, best of all, besides giving a secure foothold to horses, it has, I believe, the merit of being extremely durable, at about the same cost as hard-wood paving."

THE safety of the public at Olympia has been a matter of grave consideration to those who made the arrangements for the "Greatest Show on Earth," and, with the approval of the County Council, four huge erections or screens of asbestos have been put up as the best method of ensuring the public safety from fire. These asbestos screens, measuring 130ft. by 90ft. each, are made from what is called "Danville Asbestic," a material that is now attracting widespread interest amongst engineers and architects for its marvellous properties as a fireproof protection. After the recent terrible fires, this forms an object lesson of how to prevent their recurrence, and the fact that the management at Olympia have gone to the trouble and expense of putting up these screens, is one that will greatly enhance the sense of security of those attending the brilliant spectacle at the World's Show.

RESIDENTS in Stratford Place are not at all disposed to submit without contest, to the utmost of their lawful power to the vandalism which proposes to mar the fine symmetry of the Brothers Adam's Architecture by the addition of a story to a house there, which has long remained unoccupied and has now been taken by a dentist. Few corners of the Metropolis possess more interesting historical associations

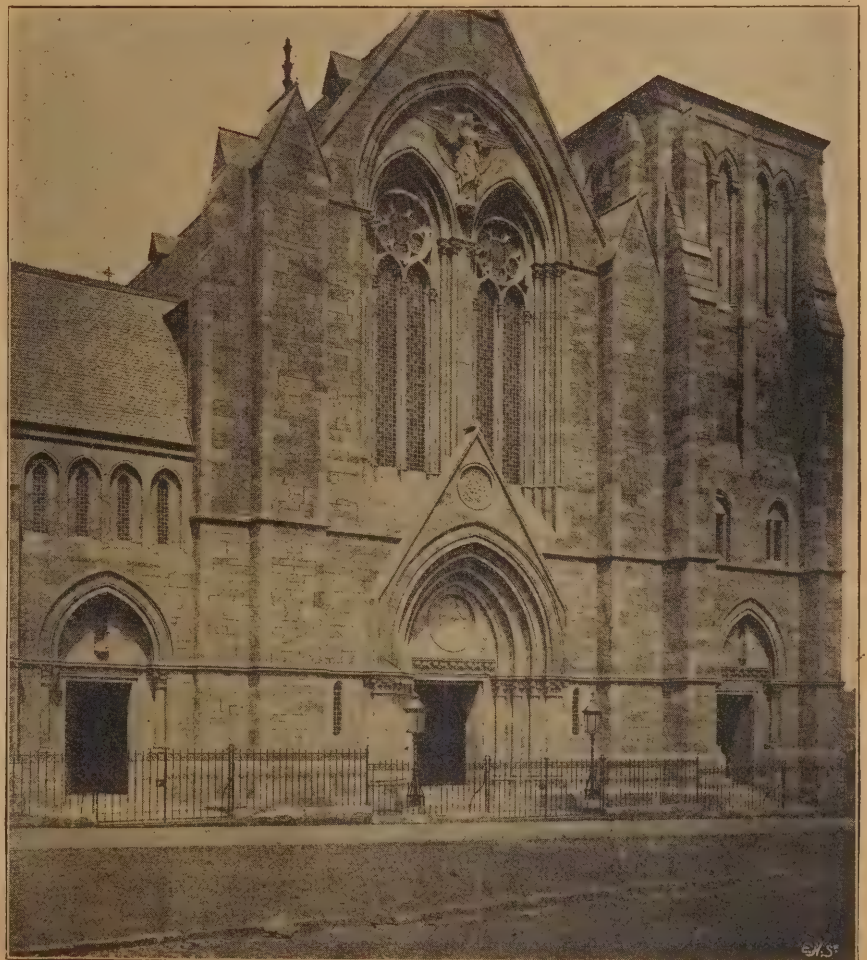
than this, for here in the fourteenth and subsequent centuries was the conduit-head of the City water supply. Over this stood a very stately banqueting house, to which the Lord Mayor and Sheriffs were wont to repair for refreshment after hunting in Marylebone Fields. Edward Stratford, second Earl of Aldborough, obtained the ground lease in 1775, renewable for ever from the Corporation, and built the present houses from the Brothers Adam's plans, who thus had one of their greatest opportunities of carrying into effect their favourite idea of making the individual residences a part of the greater whole.

SIR WALTER BESANT has another article on the history of London in the Pall Mall Magazine New Year's number. It is chiefly occupied with an attempt to depict the condition and probable outward aspect of the tract of country described as "Southwark Marsh" in prehistoric and early historic times, and to show how the town of Southwark must have begun to exist. One of the first conditions was the embanking of the river on that side, which, Sir Walter thinks, must have preceded the erection of the first London Bridge, though that is nearly nine centuries ago. But the embankment which first made it possible to live in Southwark and Lambeth marshes was part and parcel of a vast work whose history, strange to say, is entirely unknown. Had it taken place during the period of the Roman occupation, Latin writers could hardly fail to have made some mention of it; had it been of somewhat later time, the earlier chroniclers must have referred to an enterprise so stupendous. But not even tradition points to the race or the means by which it was accomplished.

ANOTHER Old English room has been set up in the western arcade of the south court of South Kensington Museum, by the side of the "inlaid room" from Sizergh Castle. It is from an old house, now pulled down, at

Bromley-by-Bow, and belongs to the early years of King James I.—the date 1606 having been carved on the outside of the house. The spacious stone fireplace has over it an elaborate mantel-piece in oak, with the Royal arms very boldly carved. The ceiling bears, in the centre, the same arms with the initials "I.R.," and is covered with fine strapwork ornament, having floral enrichments and medallions containing heads of ancient warriors. An extensive alteration was made in the last century, whereby the room was shortened and the panelling was shifted to suit the new conditions. A few mouldings and door heads of the latter period have been left out, as they were in pine wood, and consequently appeared incongruous by the side of the old oak. The room is, therefore, more nearly in its original form than when demolished. Specimens of furniture of the period have been taken from the museum and arranged in the room in order to give it a furnished aspect.

THE arrangement of two rooms in the cross gallery, connecting the Indian section and science collections, has now been completed. The first room on descending the staircase is devoted, for the most part, to Cairene Art. Three of the well-known lattice windows are shown here with their curious projections for holding water-bottles. On one side is a mosque pulpit of wood decorated with delicate carved ivory plaques. Specimens of doors with similar ivory plaques are arranged in cases against the walls; casts of architectural ornament from the mosques of the Sultan Hassan and Kait Bey, and the Wekaleh of the latter Sultan, fill the upper parts of the walls and the corners of the room. In the second room are textile fabrics and embroideries from various parts of the Turkish Empire. To the left are brocades and velvets, probably from Broussa, while to the right are the remains of seventeenth century brocaded dresses, from the tombs at Constantinople, of young princesses. The screens contain em-



CAMP HILL CHURCH, GLASGOW: EXTERIOR. W. LEIPER, ARCHITECT.

broideries in endless variety of stitches from Syria, the islands of the Levant, and other parts of the East. Against each of the long walls is one side of a room from Damascus, one of the early eighteenth century, and the other about fifty years later, with their quaint cupboards and recesses. On the ground floor of the Indian section an important addition has been made to the plaster casts by a collection of ornamental details from the palace of the great Akbar at Fathpur Sikri, near Agra.

"It is literally impossible to estimate the irreparable damage which has been wrought among our ancient buildings during the present reign," writes Lord Balcarras in the *Land Magazine*. "It is true that nowadays there are few places in the land where derelict castles and churches are used as quarries, as was the practice formerly; but the tendency of the times to restore everything, to transform our heritage from the past into spick-and-span modernisms, seems to be almost as deplorable. Few will deny that our ancestors made buildings of great and abiding beauty. Why are people so ready, so willing, to mutilate such things, either by wanton demolition or by thoughtless alterations and additions? And here, at the outset, let me dispel an objection which has been frequently aimed at the Society for the Protection of Ancient Buildings. It has been argued that it wants to keep churches in ruins, to prevent their being warmed, roofed, or cleaned—in fact, to make them useless. Such charges had to be rebutted in old days, but people are now beginning to realise that the Society was never guilty of such proposals. Its object has always been to preserve, and nothing more; simply to prevent needless additions which would deface the original structure, and wherever possible to maintain the old building in entirety. It is possible to warm a church without erecting forests of stovepipe in the nave. To repair a leaking roof it is unnecessary to alter the exterior character of the building; and in order to clean a church there is no need to strip it of wall paintings, monuments, paneling, or internal decoration.

"Much harm has been done in the great centres of population; yet more harm has been, and, indeed, is being done in our country districts. The parish church is the first to suffer. A Parliamentary return was issued a few years ago which showed that something over ten millions sterling had been spent on the restoration of churches during a period of eighteen years, ending in 1891. A large proportion of this was spent on country churches. This represents a portentous amount of destruction. Restoration is, of course, necessary, and sometimes imperative; but it should take the form of protection and reparation, rather than rebuilding. However, the church is by no means the only architectural feature of our country parishes. The records of the society show that other objects of an essentially rural nature have been dealt with—old village inns, for instance, wells, barns, bridges, mills, and manor houses. Upon these much of the charm and variety of country life depend. They are not only valued relics of bygone days, but they also give character and distinction to a neighbourhood; and let it be remembered that the pleasure they afford is not confined to one county or to one generation, for they are a potential joy to every student, however humble, and also to posterity."

THERE is, fortunately, some proof already that the importance of decoration and design is becoming an article of the artistic faith. Associations are springing up for the promotion of the interests of artists who are willing to devote themselves to the applied arts, and these associations will soon occupy the ground from which the picture exhibiting societies are being driven step by step. The activity of one of the newest organisations, the Society of Designers, gives evidence of the vitality of this movement. This Society exists to advance the arts of design, and to make intelligible the claims and responsibilities of designers; it is open only to men who are actually experienced in the various branches of applied art; and it

undertakes, by means of lectures and exhibitions, the task of spreading abroad a knowledge of the best principles of aesthetics. The lecture recently delivered by the President, Mr. G. C. Haité, who speaks with the authority of a man who has made his position secure both among designers and painters, opened the proceedings of the Society for the coming year with a very definite assertion of the claims of design, and in the work of propagandism his lead is to be followed by other specialists who will handle with equal authority their own subjects of study.

In this development is the chief promise for 1898. What the Society of Designers is doing, says the *Globe*, and what other Arts and Crafts Associations and Guilds of Handicraft are actively advocating, is the building up of a foundation for an Art which will take the place of those forms of picture-making which have ceased to have any influence over the public. Other individual decorators, like Sir Edward Burne-Jones, Sir W. B. Richmond, Mr. Walter Crane, and many more, are, by precept and example, spreading a new artistic conviction far and wide. Before long the annual retrospect of Art achievement will not be a record of a few works completed in decoration, and a lamentation over the poverty of the results in pictorial Art; but a list of successes in many living and popular crafts and varieties of design, supplemented by a brief account of the works of the few great picture painters, whose commanding specialism justifies their devotion to a branch of Art in which success is possible only to the very few.

A NEW steel arch bridge, to take the place of the upper suspension bridge across the Niagara gorge, is in process of erection by the Pencoyd Ironworks of Pennsylvania. The site of the bridge is opposite the two great falls, and, owing to its position, it will connect the two free parks at Niagara, the Queen Victoria Park on the Canadian side, and the New York State Reservation on the American side of the river. The abutments of the new bridge were built in 1895. They are four in number, two on each side of the river, the members of the respective pairs being 67ft. apart. They are magnificent examples of ashlar masonry, the stones used in their construction weighing from two to six tons apiece, while the coping stones measure each 7ft. 6in. wide by 2ft. in thickness. The Niagara gorge is at that point 1268ft. wide, and the span proper of the steel arch will be 840ft. The bridge will be about 50ft. wide. The centre of the Canadian end of the bridge will be on the exact centre of the old suspension bridge, but the centre of the New York State end will be carried a little to the south of that bridge, so as to avoid the entrance to the tunnel constructed by the Niagara Falls Power Company. The work of erection, an engineering feat of no common order, is to be completed next spring.

"THE most magnificent Nonconformist church in Europe"—so described in the "Guide to Paisley"—is the Coates Memorial Church, Blackburn. The church, the cost of which is variously estimated from £100,000 to £150,000, was commenced as a memorial of the late Thomas Coates, of thread fame, in 1886, and opened for worship in May, 1894. The building is of pure Gothic character, built on the cathedral plan, with nave and aisles, transepts and choir, and is surmounted by a massive square tower, rising from the intersection of nave, transepts, and choir, which is crowned by an open lantern and spire rising 220ft. above the street level. The church, though very large, is seated for only 900 worshippers, the aisles being used simply for passages. In all its fittings, accessories, elaborations, and decorations, the utmost refinement and finish is displayed throughout. The carvings in wood, stone, and marble are of the most exquisite description, and must be seen to be understood. The marble pulpit and baptistery, the carved choir-stalls, the great organ by Hill, the lovely windows, and the elegant suites of rooms for candidates, pastors, choir, and people are among the wonders of this ecclesiastical palace, the

spacious halls, which can accommodate 900 people, adding to the sense of space and perfection which impresses every visitor. The surrounding grounds are beautifully laid out, and afford every opportunity for studying the external aspect of the superb structure.

RAPID progress towards completion is being made with the extension of the Great Central Railway. The Central Station, Nottingham, is in the centre of the town, and a large and commodious hotel is in course of erection at the entrance. Stations are also being erected at Arkwright Street (Nottingham), Ruddington, East Leake, Loughborough, Quorndon and Woodhouse, Rothley, Belgrave and Birstall, Leicester, Whetstone, Ashby Magna, Lutterworth, Rugby, Willoughby, Charwelton, Woodford, Culworth, Helmdon, Brackly, Finmere, and Calvert, the terminus being at Marylebone Road, London. The London terminus station, which is being constructed of red brick, will have a frontage of 325ft., and will contain dining and refreshment rooms on the ground floor, with offices, &c., on the first floor. Between the station buildings and the arrival and departure platforms a space of 100ft. in width, and extending the whole length of the frontage, is being provided.

On the 4th inst. it was reported that Mr. Beaumont, who was appointed to consider the competitive plans for the new technical school and public library at Colne, had awarded the first prize of £50 to Messrs. Woodhouse and Willoughby, Manchester, and the second (£35) to Mr. T. A. Buttery, of Morley. A sub-committee was appointed to consider the competitive plans and report thereon.

THE new theatre at New Cross, which will accommodate some 3000 people, is now open. The building, which faces the Broadway, is from a design by Mr. W. G. R. Sprague. Externally it is worked in Portland stone in a free Italian style, and generally the edifice compares favourably with most London theatres for appearance and accommodation. The decorations, which have been carried out by Messrs. J. S. Waring and Sons, are in the style of the early Italian Renaissance, the principal feature being the adoption of the vertical lines of the building as the basis of the ornamentation instead of the horizontal lines now generally accepted. The prevailing colours are rich, warm red-browns, and gold. Over the proscenium is a representation of the prow of the Pelican, the vessel in which Sir Francis Drake made his famous voyage round the world. There is no seat which does not command a good view of the stage. The theatre is lighted by electricity, Messrs. Verity, P. Brotherhood, and D. Paxman, under the directions of Mr. E. W. Bowles, supplying the generating plant, &c. Round the centre cluster of lamps are twelve shields bearing the arms of Queen Elizabeth, who, somewhere near, addressed the men of the ships which defeated the Great Armada; of Peter the Great, who learned the art of shipbuilding in Deptford; of Shakespeare, of Chaucer, of the county of Kent, and the City of London. The act drop represents Peter the Great at work in a Deptford shipbuilding yard, a copy of the well-known picture by Seymour Lucas, A.R.A. The comfort of the audience has been carefully studied in every way.

THERE is a Welsh picture of considerable interest in the exhibition at the New Gallery. It is Dante Gabriel Rossetti's design for the altar-piece of Llandaff Cathedral, and was lent by Judge Lushington. The picture is a water-colour in three compartments. In the centre one is represented the adoration of the Magi; in the left one the youthful David as a shepherd, with a crook and a sling; in the right one David, older, and as a king.

MR. ALFRED WATERHOUSE, R.A., LL.D., who acted as arbitrator in the recent competition for the Cardiff Municipal Buildings and Law Courts designs, has been appointed treasurer of the Royal Academy, vice Mr. J. C. Horsley, R.A., resigned. Mr. Waterhouse was elected A.R.A. in 1878, and R.A. in 1885.

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EVOLUTION OF STYLE IN ARCHITECTURE.*

By LESLIE OWER, F.R.I.B.A.

WHAT do we mean by *style* in Architecture? Style is that general character which the Architecture of a great nation presents to us when it has arrived at its highest perfection. It may be said that no great nation has ever had two styles growing and progressing at one and the same time. When what we understand by a *style* has been developed, it has only been by the continued and sustained labour of centuries along a definite line. It would seem that not by any other means is that perfection to be arrived at, upon which succeeding generations will confer the honoured name of a style of Architecture. Sometimes we do find that a great people were working in two styles, as when Gothic tried to find a footing in Venice and Italy, or the Moorish in Spain, but in such cases either one or both styles were in decadence, or Architecture was at the time, either from political causes or lack of public enthusiasm, in a state of coma or transition. This seems to be the condition of affairs in our time, and history would seem to show that until we get a firm hold of a leading idea in our Architecture, we shall not make progress in building up a British style. Vacillation from Classic and Renaissance to Gothic and back to Renaissance again, with all its varieties of Queen Anne, Georgian, Jacobean, half-timber work, &c., and then to divide up into the two pretty well defined lines of Gothic for Ecclesiastical buildings and Renaissance for everything else, does not appear to give promise of any great achievement for some generations to come.

FOUNDING THE STYLES.

In the development of what we call the styles of Architecture, the nations who have the credit of them had no special advantages which our age does not possess; indeed the opposite was rather the case. Each simply wrought out its desires and aspirations all unconscious that it was "forming a model for the mighty world and marking the fair beginning of a time." Precedent and tradition were their only schoolmasters, and very limited the knowledge they could impart. Unlike our days of intercommunication and architectural illustration, the opportunities of seeing and learning about Architecture were confined to very restricted limits. Possibly to this may be due in great measure the perfection to which they wrought up the particular style which lay to their hands, all undistracted by such an *embarras de richesses* as we have fallen heir to. Those styles were developed under varying conditions and influences favourable and adverse, some similar to what we experience and some entirely different, but all tending to impress an individuality on the perfected style. But the influence which probably most of all produced the great results we admire in all styles, was the whole-hearted enthusiasm of the nation in the works they had in hand. Their great buildings were subjects of national interest and national pride. Peer, priest, and peasant alike were under the architectural spell, and laboured to forward the realization of their great ideas. In a volume, dated 1856, of the "Transactions of the Architectural Institute of Scotland," an article appears by a well-known artist (Mr. Patrick Allan Fraser, of Hospitalfield) under the title "The Principle of 'Usefulness' as a Governing Feature in the Architecture of the Ancients." The writer says: "The great difference between ancient and modern Architecture, and the great hindrance to our improvement in architectural practice, will be found in our almost total disregard of that which constituted the controlling principle in olden times, viz., 'Usefulness.'"

BEAUTY AND TRUTH.

Mr. Fraser goes on to say, "Every arch, every column, and every corbel were truthfully necessary, and so used by those who, conscious of their creative power, sought not the aid of that truthless copyism which has always, where-

ever practised, led to the ruin of true constructive science." "Architecture to become great must be useful and truthful." It appears to me that this is a maxim which architects have some need to be reminded of now and again. How often do we see useless and incongruous features applied to buildings by way of decoration! How often a straining after novelty which results in eccentricity instead of beauty and fitness! Features and ornamentation produced under such circumstances can have no permanence nor place in building up a style of Architecture, and those who practice their Art in that fashion are not amongst wise master builders. Let us away with eccentricity, fadism, and even with somewhat of the over picturesque, and strive to design our buildings in the spirit of the ancients, useful and truthful, causing them to proclaim their purpose and record the history of the people for whom we build.

INFLUENCE OF RELIGION.

It is a noteworthy fact, and one which shows how deeply the spiritual is seated in man's nature, that religion has in every age been the most powerful influence in developing all that has been best of Architecture. Men under its inspiration have always surpassed themselves, having piled up the Pyramids into the most gigantic monuments which ever have been, and, probably, ever will be, erected; elevated the noble Parthenon on the Acropolis of Athens; thrown the dome over St. Peter's at Rome, and tossed the graceful spires of Cologne Cathedral 400ft. into the blue vault of heaven. In our day, religion has not that great influence in promoting Architecture which it had in past ages. Our unfortunate divisions into numerous sects is fatal to that great and combined effort which produced the magnificent temples of former ages, and thereby gave opportunities for the realisation of the people's highest ideals in Architecture. Every age has its particular bent, and that of our's does not seem to be Architecture. In Mr. Blomfield's new book on the Renaissance in England, he says: "The Arts do not at this moment express the finest intelligence of the country. That intelligence is concentrated in other channels, and has left its mark in science, in immense commercial enterprise, in almost every other form of activity other than the arts. The latter are not at present regarded as worthy of serious and sustained attention, and until some reasonable standard of judgment has grown into recognition among educated people, it is not likely that there will be any general improvement in English Architecture." That there is much truth in those words no one will deny, though the view of the case is rather pessimistic. I hope we may venture to think that educated people do take an interest in our Art; and in the spread of education, and the great facilities now offered for travel, which is the great popular educator in Architecture, we may expect to find a powerful influence on our Architectural style. So far as the practical is concerned in our Architecture, we are not far behind. If the average Englishman (and Scotchman, too, for that matter) does not care to understand what Art is, he is all there when considering questions of comfort. In our rigorous climate we spend much of our time indoors, and thus it comes that in no country do we find the art of making a comfortable, convenient, and healthy home so well understood as in Britain.

INFLUENCES MODIFYING STYLE.

There are many influences at work in the development of style, and we might briefly consider a few of the more important. One of the most important is climate. The idea which lies at the root of all building is that of providing shelter from the elements, and therefore we find the Architecture of all people varies with their needs in this respect. In sunny and dry climates roofs are generally flat, while in wet climates they have to be made sloping to throw off rain and snow. In this feature alone we find a marked difference between the Classic and Gothic styles, the latter having been perfected in the most rigorous climate. Where the sun is hot and light strong, thick walls and small windows are found, and shady colonades and open

courtyards are necessary. Cornices with heavy projections giving intense shadow are suitable for sunny climes, while the broken skyline and strongly marked vertical features are more suitable for northern. The materials at hand wherewith to build have a strong influence in forming the style of Architecture of a country, and it is noteworthy that in every age and to every people stone seems to be the material which most commends itself for suitability, appearance, and permanence. Where the stone is soft, like Parisian limestone, we find ornamentation carried to a great extent, and where hard, like the Egyptian or Aberdeen granite, we find mouldings few and simple, carving rare, and the beauty of the material itself relied upon for effect. Where good clay abounds and stone is scarce, we find bricks used, and where neither is readily available a construction of timber and plaster or mud takes the place, as in some of the counties of England, but in such districts the finest buildings are generally built of stone transported at considerable cost from a distance, neither the brick nor the timber and plaster having that permanence and substantiality which we look for in a fine specimen of Architecture. The pursuits and habits of the people have necessarily a great influence in forming their architectural style. Agricultural and trading people, such as the Egyptians, Phœnicians, Greeks, Venetians, and the like, have generally excelled in Architecture, and the palaces of their merchant princes serve us at this day as models for our finest buildings. Some constructed their buildings for internal effect chiefly, such as the Egyptians and Mohammedans, others for external, like the Greeks; while the Roman and Gothic builder aimed at combining the two ideas. While as a rule war is destructive of any advance in Architecture, it is different when a highly-civilised people push their conquests over barbarous countries. The Romans, when they subdued the greater part of Europe, carried their Architecture with them, and it breathes out its influence to this day. A similar process is at work in India, where British architects are erecting buildings to British ideas, and at the same time suitable to the climate and materials at hand. Commerce has been a great factor in promoting Architecture, for commerce can only flourish where life and property are reasonably safe, and Architecture requires similar conditions. In tracing back the course of architectural history chronologically, we do not find an unbroken sequence carrying us back to a time when the whole world was in a state of barbarism, for, after getting beyond all written history, we come to the early Architecture of Egypt, complete in its design and execution when all other countries are quite uncivilised. We find no evidence of the growth of the Art in Egypt. There we find those specimens of Architecture which are unquestionably the oldest buildings in the world, and though entitled to this distinction, strange to say they are the buildings which most excite our surprise and admiration, even at the present day, as well for their scientific construction and the excellence of their workmanship as for the wonderful size of the everlasting Pyramids.

MODERN INFLUENCES ON STYLE.

We may now consider some of the influences at work in modern days, tending to modify the style of our Architecture, and under which a new style may ultimately be evolved in course of generations. One of the most potent of those influences in the modification of design, and therefore ultimately of style, in Architecture, is the invention of new materials and the use of already existing materials in methods and to extents undreamt of before. For instance, iron has made possible constructions which before would not have been thought of. The Crystal Palace was an adaptation of it which excited wonder and admiration at the time, and in the buildings of the last Paris Exhibition it was used in a most suitable and artistic manner. Roofs and domes can be constructed of it, at the same time strong and light, and so as not to exert lateral thrust on the walls, thereby doing away with the necessity of thick walls or

* A paper recently read before the Edinburgh Architectural Association.

buttresses. Floors can be made of great span, and unobstructed by piers or columns. Columns can be made strong, and yet so slender as to be unobtrusive where massive stone or brick piers would be highly objectionable. The many-storied buildings which the Americans are raising in their large cities are in reality iron structures cased with stone. Portland cement is another material which is having a distinct influence on Architecture. Indeed, so indispensable has this material become that we may well wonder how builders got on before its invention. By its means a building may be constructed without a hewn stone in any part of it, and it enters largely into the construction of most buildings, either in concrete foundations, fireproof floors, or otherwise. The advantage to be derived from artificial material is most apparent where there is considerable repetition of some ornament or feature, and a certain danger to good design lies in this very facility. But it is in vain that the ultra artistic soul inveighs against the use of such mechanically produced ornament, and condemns it as inartistic. The public generally will not pay for that subtle difference of artistic effect which is to be found between hand and machine work, and, except for positions where close inspection is possible, the extra cost is thrown away. By means of such mechanically produced moulded work or ornament, a design may be realised which the cost of hand labour would make quite prohibitory, and I hope, in the interests of practical common sense, that the number of those is few who would say that rather than use such aids it would be better to leave a building in archaic simplicity. Think you that the ancients, for whom those of this cast of mind have so much reverence, would have adopted this course? Had they had Portland cement what would they not have done with it, especially if combined with iron? Instead of wooden roofs, vaults which they feared to throw over cathedral naves would have floated over nave and choir and aisle alike; the ponderous piers they found necessary (and sometimes they did not make them strong enough) to carry the enormous weights would have been reduced in size, and their great creations, whether in massive tower and soaring steeple, in flying buttress, slender pinnacle or tracery almost too delicate for the rough winds of heaven to blow upon, would have had a strength and permanency which would have preserved them as a joy to many generations. Truly we are not half grateful for our advantages. In ancient days the inventor of Portland cement would have been canonised as a saint, and builders would have burned candles on his altar for ever afterwards. Amongst other materials tending to modify design, I may mention terra-cotta, tile faience, mosaic and asphalt.

MATERIALS AND METHODS OF CONSTRUCTION.

Such new materials and methods of construction have, as every architect knows, a very great deal to overcome in the way of rule-of-thumb practice, vested interests, and prejudice before their adoption becomes general. Often, to begin with, it is only by imitating the old method of doing a thing that a beginning can be got, while a better way may be latent in the nature of the material. The capitalist is naturally a very cautious individual, and he will not spend his money except for that which he is quite sure is bread. He prefers that some one else should experiment with new methods and materials, and then he will enter into their labours. Again, there is scarcely an architect who has not had reason to rue the day he was induced to go into some departure from the usual. His experience of this is that all who have to do with the innovation look askance at it. The workmen are unfamiliar with and often unfriendly to it. Those who may have to work it will not take the trouble to understand it, and put the blame on the new material or method, which rightly belongs to themselves. The client thinks that he would have been better with the old way, and that the architect is to blame in recommending a thing without knowing it to be perfect. Sometimes the thing or method is not just free of all imperfection any more than most things

and people are in this troublesome world, and under the combination of all such influences the unfortunate architect inwardly vows that never again will he advise the adoption of any new-fangled thing or method. Some may be inclined to blame an architect for following precedent too much in his practice, but it would only be fair to remember that he is not a free agent in this matter. He is not spending his own money, and he is not entitled to spend his client's in experimenting, unless with express permission and in view of some very substantial probable gain. In dealing with a new material he may think he sees some more excellent way of using it, but it is only by experience that this is to be proved, and experience is often a very costly—as well as very efficient—teacher. Doubtless there are latent possibilities in many new materials, and many departures from old forms of design and construction might be made, but the public are slow to follow up and adopt such new ideas. They must be made gradually familiar with them. Precedent is the all-powerful factor with most in forming ideas on Architecture. What they have seen, that they can understand and that they want. They are thoroughly convinced of the truth of the maxim that "seeing is believing," and, unfortunately for the architect and the advance of his Profession, they will not take place among the more blessed few who, having not seen, yet have belief in the skill of the architect to fulfil their requirements in the best way.

NATURAL TREATMENT OF MATERIAL.

I lately observed an important building being put up in the classic style where, over shop windows, cast-iron lintels were being used, having mouldings on them in continuation of those on the stone piers. This is an instance of the architect selecting the most suitable material for his purpose, but one which was not available to those who perfected this style of Architecture. By its adoption, the piers can be further apart than would be possible with a stone construction, and herein lies an important departure from one of the leading characteristics of the style. But is it justifiable to make this new material imitate stone, which would be practically an impossible material to use for the span required? Yet what architect would not do it, and would dare to adopt a treatment peculiar to the nature of the material? It would be an incongruity in the design, which is classic in feeling and demands a straight stone-like lintel. Truly when we come to close quarters with questions of this kind, our general theories often have to stand aside; but nevertheless it is highly desirable to keep the general principle in mind that every material has its own natural treatment, and it is well to use it in that way so far as prejudice or use and want will allow. Modern inventions, in which our age is so prolific, are having a distinct moulding influence on Architecture. Railways have brought out a phase of Architecture peculiar to themselves in their great stations with roofs of immense span. Our postal service has been the means of many handsome buildings being erected all over the country. Lifts, telephones, the electric light, and pneumatic tubes have all been utilised in business centres, and affect the design of city buildings. By the use of lifts many-storied buildings become as convenient as those of two or three floors, an idea which the Americans have carried to excess; while the electric light enables basements, which before were almost useless, to become valuable adjuncts to such buildings as hotels and large warehouses. Telephones and pneumatic tubes enable distant buildings to become almost as convenient as central ones for business purposes. The habits of modern life have, of course, a strong influence on our Architecture. The facilities for travel are such now that the prophecy of Daniel seems to be fulfilled, that "Many shall run to and fro, and knowledge shall be increased." By travel and photography people have become familiar with the Architecture of all countries, and can select what features of each seem to them most pleasing and suitable for their purpose.

(To be continued.)

KEYSTONES.

The foundation-stone has been laid of the new church which is being erected on the old site, Rye Hill, Newcastle.

TENDERS for the erection of the new meat market in Leeds are to be invited. The site of the new structure has been marked out, and workmen are now engaged preparing the foundations.

THE studio of the late Sir John Millais, P.R.A., 2a, Palace Gate, Kensington, has been taken by Mr. H. J. Thaddeus, R.H.A., who is at present engaged on a portrait of his Royal Highness the Duke of Cambridge.

RAPID progress is being made with the two principal improvements which will be especially noticeable at St. Stephen's when Parliament reassembles—the new ladies' doorway on to the terrace and the portico over the entrance to the Speaker's official residence.

THE will of Sir John Gilbert, R.A., the famous painter, of Ivy House, Blackheath, who died on October 5th, is proved by his brothers, Messrs. George and Frederick Gilbert, by whom the testator's personality is sworn at £231,928 6s. 9d. gross, and £231,584 2s. 8d. net.

THE Halifax Town Council has resolved to apply to Parliament for a bill empowering them to construct new waterworks at Walshaw Dean, to lay down and work electric tramways through twelve districts, to widen several streets, and to manufacture carburetted water gas, &c.

THE London County Council has addressed a circular letter to the vestries and district boards of works of London suggesting that fire-alarm indicators be placed on the public lamps, and asking the local authorities whether they will undertake to provide and fix the same in the different districts under their control.

A TABLET and medallion to the memory of the late Rev. Dr. Robert Macdonald has been unveiled in the North Leith Free Church. The sunk portion of the tablet is of pure white marble, while the outer portion or bordering is of Sicilian marble. The style of the tablet is Early English Gothic.

THE "Bun Shop" in the Strand has been offered for sale, but as only £9000 was bid it was bought in, the reserve price being £12,500. A short time ago, a drinking bar, not more than 20yds. long and 4yds. wide, in the same locality, was offered for sale. As "only" £30,000 was bid the place was bought in. The owners wanted £75,000.

MR. E. J. HUGHES, the town surveyor of Newhaven, was badly burnt about the hands and face by an explosion of sewer gas. It seems he was attending to the opening of a manhole in Bridge Street, and dropped a lighted match down, at the same time warning others to stand back. An explosion occurred, and Mr. Hughes does not appear to have given himself time to get away.

THE position of engineer to the Liverpool Corporation, vacated by the retirement of Mr. Boulnois, is one of the prizes in an important profession. January 18th has been fixed as the final date for sending in applications for the appointment. A commencing salary of £1000 per annum is offered, and preference will be given to candidates between 30 and 45 years of age.

THE Dean of Gloucester has just made a very beautiful gift to the cathedral in the form of a magnificent festal altar cloth. The design, an elaborate Italian piece of work (early seventeenth century—roughly of the last days of Elizabeth), is on white figured satin brocade, and is composed of flowers and foliage richly embroidered in delicate shades of colour and encircled with gold.

THE new superstructure of Moorgate Street Station, designed by Mr. Delissa Joseph, F.R.I.B.A., has now been completed, at a cost of about £18,000, the contractors being Messrs. J. Allen and Sons. The elevation, which is Classic in design, is executed in Portland stone, and occupies a frontage of about 155ft. to Moorfields, and of about 90ft. to Fore Street Avenue. The new buildings take the place of the wooden structures which so long disfigured this important site.

Professional Items.

BARRY.—A new public abattoir has been erected at Barry. The buildings are constructed of red brick, with dressings of buff brick and terra-cotta, and roofed with blue slate, with red ridge tiles. The slaughter-halls and cooling-rooms have a dado 4ft. to 5ft. high of white brick glazed, and are fitted with hoisting machinery, and the adjacent roadways are laid in *Vál de Travers* asphalt, on a bed of cement concrete 6in. thick. The lairs for sheep and calves have a dado of salt-glazed bricks, and are fitted with wrought-iron railings and gates. The lairs for cattle have a salt-glazed brick dado, and have bars secured to the wall. The drains are all connected to the main sewer, and the site comprises an area of 2r. 11p. The cost of the buildings will be about £6500. They are carried out from designs prepared by Mr. J. C. Pardoe, surveyor to the Council. The contractor for the buildings is Mr. George Rutter, Barry, and for the ironwork Messrs. W. A. Baker and Co., ironfounders, Newport, Mon.

BLACKBURN.—A scheme is on foot for the enlargement of the Blackburn Post Office. The present proposal is to enlarge the existing premises, which are owned by the Crown, by acquiring the shop premises adjoining, and extending the frontage round the corner into King William Street. The difficulty of obtaining a more suitable site would be considerable, and the improvement at that particular corner, by the demolition of the existing buildings, would be so great that it is hoped the scheme may be successfully carried out.

BRADFORD.—Extensive building operations are in progress at Bradford. The clearing away of hundreds of workpeople's dwellings in the centre of the city—partly for sanitary reasons and partly on account of railway and other operations—has necessitated the erection of improved houses of a similar class outside. At the present time a portion of the Horton Grange estate at Legrams is being parcelled out. The estate in its entirety embraced about 100 acres of land. It is now proposed to construct a road, 18yds. in width, up the Horton Beck valley, from Horton Grange Road to Beckside Road, a distance of 700yds., and at a gradient varying from 1 in 24 to 1 in 30. Sufficient evidence of the progress made is furnished in the fact that since 1832, when twenty-nine acres of the Tanhouse estate were sold to Messrs. Johnson and Jones, that firm has erected 500 houses. Moreover, 170 dwellings are in course of erection by Mr. Johnson and Messrs. N. and D. Thompson. On the west side of Grange Road, Mr. Johnson has about 250 more houses in hand. On the Lidget Green and Beckside portions of the Horton Grange estate some twenty-nine acres have been disposed of to Messrs. Robinson and Gaunt. This land is to be laid out in streets and building plots.

BRISTOL.—The new mission-room of Temple, or Holy Cross, Church has been formally opened. The building has been erected at a cost of about £3000. It is situated on a site belonging to the vestry overlooking the churchyard. It comprises a handsome hall to accommodate about 300 people, with a retiring-room attached, and two large class-rooms. There is also a residence for the caretaker. The building is in the Gothic style, and is entirely of brick, being faced with brick inside, and the traceried windows are filled in with ornamental glass.

CARDIFF.—The restoration of the tower of St. John's Church has been completed. In A.D. 1473—over four centuries ago—the foundation of this fine tower was laid. It was designed by one Hart, an architect, who also designed the towers of Wrexham and St. Stephen's, Bristol. The embattled parapet, with its graceful pinnacles, is a landmark of ancient Cardiff. The south-west angle turret was struck by lightning in 1860, and was rebuilt by Mr. Shepton. The windows are full

of rich and well-thought-out tracery work and ornament. Before the restoration the tower was in a very bad condition, the top portion being dangerous. The work of restoration included the taking down of about half of the embattled parapets and rebuilding; also taking down of about 25ft. from the top of the north-west and south-west buttresses, which had broken away from the walls entirely. While these buttresses were being rebuilt the lofty angle pinnacles were held up by chains from the opposite angles. The windows were all restored where found, perished, and the whole of the tower from top to bottom was pointed down, the walling made good, a new lead flat laid, and copper stays fixed in place of iron. The floors over the entrance and under the ringing floor are groined in stone on the old corbels, which were built in when the tower was erected. The tower floor was carried down to the original level inside and out, and an area formed in the street, enclosed with a wrought-iron railing, to show the original level, so that the congregation will now walk on the original threshold which the inhabitants of Cardiff walked on over four centuries back. The walls which blocked up the north and south archways have been removed, the arches restored, and the carving which was hacked off restored, and the gates hung inside. The work has been carried out by Mr. George Shepton, under the superintendence of Mr. C. B. Fowler, of Cardiff. The glass has been supplied by Savell and Co., of London, the wrought iron gates and railing by Messrs. Leatheren, of Cheltenham.

An addition to the number of arcades in Cardiff has been made recently in "The Central Arcade," which runs through from St. Mary Street (not far from the station end) to the Hayes. The style of Architecture adopted is Flemish Renaissance. At the entrance stand a pair of large and well-lighted shops, and within the arcade there are no less than twenty-nine shops on the ground floor. The windows (plate-glass) are set in neat mahogany frames of the latest style. Each shop is provided with upper rooms for storage or show-room purposes, and a set of offices in the basement. A central conduit, running the whole length of the arcade in the basement, forms a novel feature of the building. Through it run the gas and water pipes, and also the electric wires; a couple of ventilating fans (each driven by an electric motor) draw fresh air from the St. Mary Street end, and eject it through a large brick ventilating shaft that terminates in an exhaust ventilator. From this conduit all the drains may be repaired without disturbing the shops, and all foul air is taken off from the offices by the fans. The general construction of the arcade is in local stock brick, carried on iron and steel columns and girders. Mr. Edwin Seward is the architect, and Messrs. E. Turner and Sons the builders.

DUBLIN.—The new altar of Mary Immaculate in the Pro-Cathedral is a beautiful specimen of artistic workmanship in the Classic style, to harmonise with that of the Pro-Cathedral. The reredos, tabernacle, and dome over are executed in statuary marble, the tabernacle being enriched with fluted Sienna marble columns, worked to the true Entasis, and having moulded caps and bases. The cornice over these is moulded with carved cresting on top, and surmounted with a proportioned dome, enriched with moulded ribs, and crowned with a foliated cross. On either side of the tabernacle is the reredos divided into panels, with semi-circular moulded heads forming an arcade, and having moulded pilasters and columns between in Sienna marble. The most striking portion of the work is the mosaic treatment of the background of the niche and the part surrounding it, all of which are executed in glass mosaic, the background of the niche being in blue, with gold stars, while that surrounding it has a gold ground with a wreath or scroll of lilies exquisitely inlaid in different shades of colour, and all outlined in black. The altar rail is executed in pure statuary marble throughout, with columns in Sienna marble, with moulded caps and bases, the cornice on top being richly

moulded. The whole of the work has been carried out from the designs of Mr. G. C. Ashlin, architect.

GLASGOW.—The arrangements for the reconstruction of the Royal Infirmary are being gradually matured. The plan which it is expected will be adopted proceeds on the idea that the new infirmary shall be constructed on the pavilion principle. The several blocks will run from east to west on the site; and be connected from north to south by a covered way. For the kitchens, engine-house, &c., accommodation will be found at the eastern boundary, which is on a lower level than the portion of the site towards Castle Street; and on this portion of the ground space will also be found for an additional ward for special cases.

GOVAN.—The foundation stone of St. Kenneth Church has been laid. Mr. Macgregor-Chalmers is the architect for the new edifice, which is the third that has been erected as part of the large scheme of church extension for the parish of Govan. There will be accommodation for 800 people, and the hall will accommodate 300. There is also a small hall, committee room, vestry, &c. The church comprises a large nave, with one side aisle, in which is the only gallery, a large chancel for the choir and communion table, a side chapel, and an organ chamber. The walls of the halls, &c., will be finished in pressed red brick. The contractors are: Mr. W. Calderwood, mason; Mr. John Smeaton, joiner; Messrs. M'Ouat and Sons, slaters; Mr. Norman M'Dougall, glazier.

INVERNESS.—The Crown Free Church Hall, Inverness, has been opened. At present only part of the full plan has been proceeded with; when ultimately completed, the building will give accommodation for between 800 and 900 people. Mr. James Rhind is the architect. The church and hall are in the thirteenth century Gothic style, and is eminently suited for the fine situation and architectural institutions with which it is bounded. The elevation to Kingsmill Road shows three large doors and a large rose window about 18ft. in diameter. In the church the seats will be semi-circular, with a slope towards the centre; while in the hall accommodation has been provided for about 400 persons.

LIVERPOOL.—The new Lyric Theatre, recently opened, stands on a site situated at the corner of Everton Valley and Kirkdale Road, and has been erected by Mr. Ellis Brammall. The front part of the house is in Everton Valley, and has a red brick facing. Inside the decorations are most effective. The total number the building will hold is estimated at close upon 2000. The interior decorations have been carried out in fibrous plaster in the Arabic style, and the ceiling in particular bears evidence of the graceful and dexterous touch of the consummate Art of the decorator. Special attention has been paid to the modes of ingress and egress to and from the auditorium. The theatre is lighted throughout by electricity, and there is an auxiliary supply of gas. The architects are Messrs. J. and G. Chappel, of Walton; the fibrous decorations have been carried out by Messrs. W. Goodall, of Hope Street; the painting, decorating, and furnishing by Morton's, of Bold Street; the electric fittings by Messrs. Williams and Bucknell; the gas and limelight arrangements by Messrs. Ayres and Tuplin. The whole of the work was carried out from the designs and under the personal direction of Mr. W. Vaughan, of 11, Westminster Chambers, Liverpool.

LONG PRESTON.—The new building of the Long Preston Endowed School has been opened. Mr. C. R. Chorley, of the firm of Chorley, Cannon, and Chorley, architects, Leeds, prepared the plans, with accommodation for boys, girls, and infants. The schools are built on the central hall system, and will accommodate 152 boys and girls, 64 infants, and 41 babies. The central hall, which is lighted at the top and ends, is 53ft. long by 24ft. wide, and will also be used for parochial

gatherings. Around the hall are the classrooms, cookery class-room, infants' school, and babies' room. The building is of a simple but substantial character, the walls being of Bradford stone, and the internal woodwork of pitch pine. The total cost has been £3300. The following were the contractors: Masonry and carpentry, James Russell; plumbers' work and painting, Thomas Throup; slating and plastering, William Jackman, all of Long Preston; and ironfounders' work, Teale and Somers, Leeds.

LOUGHREA.—Considerable progress has been made in the work of erecting in Loughrea the imposing new cathedral. The clearing of the site involved the total demolition of Monahan's Hotel. The situation of the new edifice is considered most suitable, and the name of the building will be the Cathedral of St. Brendan of the Lake. The total length of the nave inside the walls will be 120ft., and the width across the transepts 90ft. The sanctuary will be 30ft. by 28ft., and the side chapels 15ft. by 15ft. The cost of the structure is roughly estimated at £20,000. The style of Architecture will be the Early English Gothic, and the plans provide for nave, sanctuary with apsidal end, aisles, transepts, baptistery, two sacristies, tower, and spire. The nave will be divided from the aisles, transepts, and side chapels by richly-moulded arches, supported by polished pillars of red Aberdeen granite. Light will be provided through large tracery windows in the apex and in the gables of the transepts, and richly-moulded tracery windows in the clerestory. The church will be built of limestone, a very fine quality of which is locally available. Mr. W. H. Byrne, C.E., and Mr. Glynn, both of Dublin, are carrying out the work, the former being the architect, and the latter the contractor.

MELLOR.—St. Mary's Church, Mellor, has been reopened after having been renovated. The cost of the restoration is estimated at £3500. The roof and coping stones have been thoroughly examined and repaired. The Dodgson monument has been placed inside the church, and a suitable substitute erected over the family vault; and the Hargreaves, Dodgson, and Troy windows have been protected with sheet glass. The main entrance to the church has been much improved. An organ has been built by Mr. Edwin Smith, of Blackburn. A new font, with light oak cover, has been given, and is a copy of a thirteenth or fourteenth century font, which was discovered buried beneath one of the porches of the old church at Welshpool, Montgomeryshire. Mr. Varley, of Blackburn, carved the font, and Mr. Harry Hems, of Exeter, the cover. The chancel screen is of light oak. The sacred edifice has, of course, been beautified, and the work has been executed by Messrs. Paley and Austin, architects, Lancaster, and Messrs. J. Hatch and Sons, contractors, Lancaster.

MORECAMBE.—It is proposed to erect a revolving tower at Morecambe similar to that at Great Yarmouth. The site of the tower is the open space between Highfield and West End Road, with a frontage to the promenade. The height will be about 160ft. and the width 15ft., and it will be surrounded by a revolving platform, circular in shape, to accommodate about 150 persons.

NEATH.—Another old landmark has been swept away in the shape of the old Academy Buildings in Green Street, and on this site has been built a block of buildings which forms another architectural improvement designed by Messrs. Wilson and Moxham, architects, Swansea. The exterior is of red St. Bee's stone and guting stone, built in alternate course, carried up four stories in height, and terminating with a sharp pitched gable, surmounted by a huge carved griffin. The contractors for the work were Gustavus Bros., of Swansea.

NEWTON ABBOT.—A new Workhouse Infirmary has been erected at Newton Abbot. The building comprises a central block, in which are twelve rooms, 17ft. by 14ft., nurses' duty

rooms, &c., and two wings with two wards in each, 62ft. long by 24ft. wide. All are 11ft. high. At the rear, connected by covered ways, is another building, including three lying-in wards and five bedrooms for the nurses. Two of the lying-in wards are 22ft. by 20ft., and the other 15ft. square. The exterior walls are of local dressed limestone, with white brick dressings, and the interior walls are of brick, a cavity being left between the two to render the walls damp-proof. Twelve of Boyle's fresh-air inlets have been erected in each of the wards. The heating arrangements are very efficient. All four of the large wards are heated by means of Shorland's Manchester stoves, of which there are two in each ward. They take in a current of fresh air from the north wall under the floors, warm the air, and then distribute it in the rooms, making them perfectly warm and comfortable, and rendering the temperature the same all over the wards. Fireplaces are provided in the other wards. Corridors, bathrooms, staircases, and every other part of the building are heated by steam from the six-horse-power boiler in the cellar, which boiler also supplies the whole building with hot water. All the corridor floors and ceilings, as well as the walls and ceilings of the staircases, are of fireproof concrete, and the whole of the corridors, lobbies, and offices are lined with glazed bricks to a height of 4ft. 6in. On the ground floor there is a surgery; the nurses' duty rooms are well fitted up, and four large heated linen closets are provided. Mr. S. Segar is the architect; the building has been erected by Mr. F. A. Stacey; and Mr. J. Cole, of Torquay, was the clerk of the works.

SCAWTON.—The church of St. Mary's, Scawton, near Thirsk, has recently undergone restoration. The weight of accumulated years and the storms of centuries had long since made visible the decay of this Early Norman structure—which was beyond dispute the oldest unrestored church in Yorkshire. At the time the present work was undertaken it was unfit for worship, with its decayed roof, its cracked walls, and tottering porch; while its wooden bell-cot, which rose a yard above the roof, had some time ago become so unsafe that it had to be removed. The porch has been entirely rebuilt, also part of the west end, and the original window restored. The outer walls have been carefully repaired where required, and the whole completely repointed. The roofs have been renewed, the heavy stone slates replaced by red tiles, the chancel roof brought to its original pitch, a new bell-cot provided, all dressed stonework stripped of its plaster and whitewash, floors replaced with cement concrete, &c., and the church now has a neat appearance.

SHEFFIELD.—The Alhambra Theatre of Varieties, on the main road at Attercliffe, has been opened. The distinguished feature of the Alhambra is its construction. Its seating accommodation, which is for 1600 persons, will give the audience an uninterrupted view of the stage. The architects for the building are Messrs. G. D. Martin and A. Blomfield Jackson. On the exterior, a good elevation is provided in glazed brick and terra-cotta faience for the base, red-brick for the staircase bowers, terminating in cupolas and flagstaffs, which flank the frontage on either hand, and stucco ornamented with carved heads, for the remainder of the façade. Inside, the accommodation comprises, on the ground floor orchestra stalls, stalls and pit, and upstairs a large circle or balcony, holding not far short of as many as the whole on the ground floor. The decoration, in consonance with the title of the building, is of Moorish type, and is of bold and effective design and artistic colouring. The scheme includes both walls, ceiling, and proscenium, and the most striking feature is certainly the proscenium, which, instead of being the usual square opening, has the form of a beautiful curve, capable of most graceful treatment with the curtain. The upholstery is uniformly of crimson, plush on moveable chairs being used for the orchestra stalls and a comfortable material for the stalls and balcony. The building is guaranteed fireproof

throughout; even the balcony, which is on cantilevers, having a flooring of concrete. Messrs. J. T. Rickett and Company have carried out the electrical work, and the Sheffield Gas Company has fitted up the system of gas lighting. The building itself has been erected by Messrs. G. Longden and Sons, of Neepsend Lane, Sheffield; the decorations, seatings, and upholstery being carried out by Messrs. A. R. Dean, of Birmingham.

TREDEGAR.—A new chapel has been erected at Walter Street, Tredegar. It supersedes a corrugated iron building, provides accommodation for about 400, and has a very convenient schoolroom at the rear. The plans were prepared by Mr. W. S. Williams, architect, Tredegar. The builders were Messrs. Edwards Brothers, Tredegar.

WIGAN.—The marble restoration of the high altar of St. John's was recently brought to a satisfactory completion. Though the name of the original designer of the altar is lost in obscurity, the work is certainly a very beautiful specimen of a Greek temple, in the Renaissance style. It was never proposed to change a line or moulding of the old altar, but it was generally admitted that the plaster used in its construction was anything but worthy of the design. The re-painting and re-gilding of this poor material would soon yield to the ravages of the Wigan atmosphere, so it was thought better to restore the altar in marble veneer. Solid blocks were out of the question, as they would involve an immense outlay, and the demolition of the existing structure. It was feared that as this was the first experiment of the kind in altar-building, it would be difficult to make the Scagliola marble wrap round the eight exquisitely moulded pillars that support the great dome and lantern, but this difficulty was overcome by the contractors, Messrs. Hammond and Son, Quay Street, Manchester. This firm, after stripping the lantern and pillars, encircled them with white marble, and clothed the convex side of the dome with the same material in dark green. To relieve the great mass of stone, the services of Mr. Louis Dandy, a Liverpool artist, were called in, and the gold he has employed on the capitals and balustrades and along the marble frieze has added immensely to the gracefulness and impressiveness of the whole erection. After much consultation it was decided that the central truncated tower, which supports the upper story and contains the tabernacle, should be done in "Devonshire rouge." This choice not only gives stability to the base, but enhances the effect of the white and gold, and throws the outline into bolder relief, and while it adds to the general effect of loftiness, removes all appearance of topheaviness. In the central panel of this main shaft is inserted a very handsomely wrought brass tabernacle, supplied by Messrs. Hardman, of Birmingham. The panels of the table proper are in dark rose-red, known as Rosso antico, lightened by a large central space of gold, with an elaborate design in branches, leaves, and tendrils. The six magnificent candlesticks, in carved wood, have been re-gilt, a new sanctuary carpet has been laid down, and no minor detail that helps to the impressiveness of the design has been overlooked.

The old music hall in Cheapside, Wolverhampton, has been demolished, a company having been formed to erect a new Empire Music Hall on the site which on one side opens into Queen Square. In getting out the foundations, several interesting discoveries have been made. Two wells, one forty-four yards deep and the other forty yards deep, have been unearthed. These are being filled up. There has also been found a subterranean passage, which has been traversed for a distance of 30ft. in the direction of Queen Square, where it was found blocked up by a wall. It is supposed that the underground walk, which is hewn out of solid rock, was constructed some hundreds of years ago to enable people to pass from St. Peter's Church, when it formed part of the monastery, to some other building in the vicinity.

Enquiry Department.

We have pleasure in announcing that the services of specialists in every branch of the building industry, or representative of every phase of architectural thought, have been secured in connection with our "Enquiry Department." We shall at all times be pleased, therefore, to receive queries from correspondents, and lay them before the specialists concerned, who, in their turn, will be pleased to give the fullest and most accurate information.

COLOUR DECORATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you kindly inform us the publishers' name and the price of the book, "The Principles of Harmony and Contrast of Colours," by M. Chevreul, quoted by Mr. L. A. Shuffrey in his recent paper before the A.S.A.?—Yours faithfully, J. LONG & SONS.

Mr. Shuffrey's recommendation of M. Chevreul's work has already been called in question in more than one quarter. The book in question was published so long ago as 1854, when the study of colour was in its infancy, and it is clear, therefore, that considerable modification and revision is necessary to make it an authority at the present time. You would be better advised to select one of the following books, which are both recent and admirable works:—"Colour; a Manual for Students," by Prof. Church (new and enlarged edition) 1897, 3s. 6d.; Cassell & Co., La Belle Sauvage Yard, Ludgate Hill, E.C. "Painting and Decorating," by Walter J. Pearce, 1898, 12s. 6d.; Griffin & Co., Ltd., 12, Exeter Street, Strand, W.C.

DUST-SHOOTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you please give me information as to how a dust-shoot, for a small infirmary with four beds, is constructed? The dust-shoot to be from first floor. I hear they are much used abroad.—I am, Sir, your obedient servant, A. E. SIDFORD.

The usual form of dust-shoot is quite a simple contrivance, being but a galvanised iron pipe of 9in. or 12in. diam., with shoe to discharge over a "sanitary" dustbin, and with closed hopper head at top, into which the dust is shot through an opening in the wall on upper floor, which closes with a hinged iron flap, hung at the top, and acting in a similar manner to a flap-trap in a drain. A pipe should be taken from the upper part of hopper straight up above eaves, as a ventilator, and treated as would be that of a soil-pipe; for a dust-shoot, however well kept (and it should be brushed through at regular intervals), is sure to collect impurities, and on that account is not to be recommended if there be other ready means for removal of the refuse.

THE new Public Hall at Brynamman is a commodious iron building, will seat about 800 people, and the cost when completed will be about £800.

OLD Polworth Church, in Berwickshire, is about to be enriched by a handsome burial tablet to the memory of the poet Calder, who was born in the neighbourhood. The tablet has been provided by the London Borderers' Association.

THE Corporate Property Committee of the Leeds County Council has decided that all the unsold land on the east side of Victoria Avenue, Ivy House Estate, containing an area of 40,629 square yards, be sold to the Sanitary Committee for the purpose of the erection thereon of dwellings for the accommodation of persons displaced by insanitary area schemes, at the price of 1s. 9d. per square yard, and that none of the unsold land on the west side of Victoria Avenue, containing 12,672 square yards, be disposed of without first giving the Sanitary Committee the option of purchasing such land.

Correspondence.

A YEAR'S BUILDING OPERATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In reading the Journal of this week, I find a very serious mistake occurs under the heading, "A Year's Building Operations." In dealing with Leeds, your correspondent cannot have been acquainted with the facts connected with the dispute to which he refers. A strike took place in a certain firm owing to the bricklayers constantly fixing stone. I have no intention of entering into the merits or demerits of the question here, but where your correspondent got his information from, in saying that the Union had imposed a fine of £15, I am at a loss to understand. A deputation of the masters and men met to discuss the matter in dispute but the question of the said firm paying £15—or any part of it—was never mentioned, as the deputation of the men had no authority to make any such claim. Hoping you will make this correction, and thanking you in anticipation—I remain, Yours faithfully,

"ONE OF THE DEPUTATION."

SKIPTON COTTAGE HOSPITAL COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—If all the facts are true as stated by your correspondent "Verbatim et Literatim," there seems to have been some underhanded work going on in the above competition.

If a perspective view was sent by any competitor, when the conditions stated that none would be allowed, he would run a great risk of being excluded from the competition, and at the same time he would be acting unfairly towards his brother architects.

It seems a serious charge to bring against a successful competitor, to state that he submitted amended plans before the award was finally given. What proof has "Verbatim et Literatim" that this was so. I should like to have further particulars?

I was one of the unsuccessful competitors, and I do like to be beaten in a fair field when beaten at all.

If the hospital committee behaved as your correspondent suggests, what guarantee have the competitors that the "eminent firm of architects" who are said to have judged the merits of the plans existed, except in their imagination.

"Verbatim et Literatim" has evidently seen the plans. Can he enlighten us whose plans were the best, putting his own plans out of the competition?—Yours, &c.,

"THE CAPTAIN."

"A DEPRESSING SERIES."

SIR,—I write to you in the dim hope that something may be done at this cheerful season of the year to remove a growing incubus from all who are interested in Architecture.

In the pages of one of your contemporaries, Sir, painful disclosures have weekly been divulged under the title of "Architecture in our provincial towns"; and I appeal to you and to all who are interested in the cause of true Architecture, is it seemly—is it decent, even—that these things should be dragged into the light of day?

It is true the author of this depressing series may have some moral end in view—some deep irony may lurk in his commendations. Behold!—we may imagine him declaim—behold the Architecture of the nineteenth century! See it here in all its smoke-grimed horror. Catch the full flavour of all its sordid commercialism, and learn to do better.

Learn from the nearest hoarding how to use bright colour that shall cheer the soul of the passer-by, and fling away all the useless lumber of traditional forms—at any rate, till you can use them to better purpose than this.

But such a lesson, if such is intended, has been sufficiently enforced—we can bear no more. The particular horrors of our own particular provincial town we have become inured to by long and daily association. Here

may be found the bank (dirtily-magnificent), the perky Wesleyan chapel, designed by Messrs. — and — (who are not influential members of the congregation for nothing), the church in the Gothic style, with tower, complete—in fact, all the material for one of the series we allude to, but not for worlds will we disclose the name or situation of this particular provincial town.

It is almost impossible for one who has artistic perceptions to imagine the state of mind which can seriously consider some of these buildings as works of Architecture, and solemnly reproduce them as such.

If they are so, let us never handle pencil again. But one is reminded of some quaint old town still remaining where true Architecture may yet be seen, full of vitality and charm. In every village old churches and houses still bear witness to the true and the beautiful in Architecture, while both in town and country may here and there be found the rare example of our modern Art—work which bears the mark, to those who can read between the lines, of the not altogether unsuccessful struggle of the artist with adverse conditions.

S.

THE INSTITUTE EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—A letter appeared in your columns of December 22nd signed by Mr. Ernest R. Danford, in which the astounding statement is made that the Institute does not profess to examine in Art, but only in those branches of Architecture which it is essential for an architect to know. Are we to infer from this that Art is not essential to an architect? Or merely that when the Institute pretends to examine in Art it is exceeding its duties. If this latter, it is well to know it, once for all. Of course, I presume Mr. Danford knows what he is writing about.

If it is an admitted fact that the Institute does not examine in the Art of Architecture, then those who object to the Institute examinations on the ground that by such means you cannot advance the Art of Architecture, but only retard it, have a distinct ground of difference, and can conscientiously hold aloof from the Institute.

But the fact of a man being able to put the letters R.I.B.A. after his name, conveys a wrong impression to the public. They imagine when they see an architect's plate with such letters after his name that he is, in every sense of the word, fully qualified.

How totally misleading this is, all true lovers of the real Art of Architecture know only too well. There are heaps of such men, with these letters after their name, practising in the provinces, who are daily erecting buildings which have not the slightest claim to the title of Architecture, and only excite the derision of those who know the true meaning of the word Art as applied to Architecture.

Unfortunately some of the public have sufficient knowledge of Architecture to know what it means, and are able to recognise and appreciate such when they see it. And the fact of such men practising as architects, and having the letters R.I.B.A. after their name, makes them have a very poor opinion of the Institute.

If such men were content to add after their names "Architect by Examination," or merely "Registered Architect," there would be little harm done. But to imply to the general public that they are, in every sense of the word, architects, and therefore thoroughly understand their Art, and at the same time keep erecting such inartistic buildings, is, to say the least of it, not only misleading, but tends to confuse the public mind, as well as bring contempt on the noble Art of Architecture.—Yours faithfully, "CECIL MAY."

THE Birmingham Lunatic Asylum Committee has decided to appoint Mr. George T. Hine, of Parliament Street, Westminster, who is frequently employed as assessor by the Lunacy Commissioners, assessor to advise the committee on the competitive plans sent in for the new asylum to be erected at Northfield.

Trade and Craft.

THE "ARFON" SLATES.

Our attention has been lately drawn to a slate that in the last twelve months has taken a vigorous hold on the market, and secured the approval of both the architects who have examined and specified them, and also the contractors who have used them. The two most necessary requisites for a good slate—viz., lasting colour and sound metal—depend to a large degree on a low percentage of lime; and as the "Arfon" slate, upon analysis, contains only 1.91 per cent. of this ingredient, good qualities are assured, which is accounted for by the fact that the quarry is distinguished from other American quarries for its isolation, being far distant from them, and in an entirely different formation—i.e., granite—while the others are in a limestone district. The "Arfon" quarries are situated in Virginia, and are owned and worked by men who served sixteen years apprenticeship in the Penrhyn quarries, and who accordingly are fully aware of the requirements of the market here. Their method of working the quarry and their experience stood them in good stead, as their slate so secured the favour of the U.S. Government that a great many of the national buildings have been now covered with them for a period of over thirty years, and the slate is as sound to-day as when first put on. We understand the "Arfon" slates were never placed upon the English market before November, 1896, although a small package was sent over to the London Exhibition as early as 1857, when they took the first award over all competitors, including the Welsh slates. Since then they took the first award over all others at both the Centennial Exhibition of 1876 and the World's Fair of 1893. Since November, 1896, large consignments have been brought into Leith, Glasgow, Liverpool, and London, where they have given the utmost satisfaction to the users, not only on account of their excellent metal and regular delivery, but also especially because of their great economy in laying, as the breakage is very slight. We understand that Messrs. Pearson Brothers and Campbell, of Liverpool, are the sole agents for the United Kingdom for the "Arfon" slates.

In the Church of St. Stephen-by-Launceston a finely-carved oak eagle lectern and pulpit, the centre of which portrays the martyrdom of the patron saint, has been dedicated.

In connection with the Manchester Municipal School of Art, the Technical Instruction Committee have arranged for a course of ten lectures to be delivered by Mr. Hugh Stannus, F.R.I.B.A., his subject being "Some Elements and Principles of Design in Classic Architecture." The first of the series will be given to-morrow, the 13th inst.

The Convent of the Assumption, in the Rue Cambon, is a bit of old Paris doomed to immediate destruction. Built in 1622, it became secularised in 1790, and has of late years served as a laboratory to the Ministry of Finance. The site will now be occupied by school buildings. The church, of somewhat later date, remains intact.

The work of construction of the South Pier at the Port Talbot Docks, Cardiff, has been disastrously affected by recent heavy gales. About 30ft. of the massive granite blocks, weighing several tons, were removed from their position by the heavy seas and ground swells which have swept the bar, and the damage is estimated at between £3000 and £4000. It is feared that it will necessitate the blowing up of the damaged portion and resetting of fresh blocks.

Some time ago the Llanelly Borough Council applied to the Local Government Board for permission to borrow about £4000 for purposes of sea defences. It was proposed to raise the embankment at the new dock about 4½ft., in order to make impossible a recurrence of the disastrous flood of October, 1896. The Council has now instructed the surveyor to amend his plans and increase the height of the embankment an additional 3ft., in accordance with a letter from the Local Government Board.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BARROW-IN-FURNESS.—For the erection of electric lighting station, Bugleuch-street, for the Corporation. Quantities by Borough Engineer:—
William Bradley £4,081 9 5 Thomas Brown £3,444 5 2
W. Saddler 3,510 0 0 W. W. Fairbairn,
W. Gradwell and 14,100 0 0 Barrow-in-Fur-
Co., Ltd. 3,447 13 10 ness* 3,386 10 0
*Accepted.

BRISTOL.—For the erection of a music-room, 157, White-ladies-road, for Mr. H. Hayman. Mr. H. Dare Bryan, architect:—
R. Wilkins and Son £460 John Perkins £461
E. Love 431 Cowlin and Son 386
Stephens and Bastow 413 Wm. Church* 327
*Accepted.

BRISTOL.—For the erection of offices and van-sheds, Whiteladies-road, for Messrs. C. Weeks and Son. Mr. H. Dare Bryan, architect:—
Wm. Church £1,547 E. Love £1,421
Stephens and Bastow 1,498 Cowlin and Son 1,383
John Perkins 1,458 R. Wilkins and Son* 1,139
*Accepted.

CRICCIETH.—For the erection of 2½ yards of sea wall, Messrs. Thomas Roberts and Son, Engineers:—
T. R. Bishop £2,570 0 John Hunter £1,435 0
R. Roberts 2,050 0 Griffith Williams 1,390 0
Thomas Bugbird and Owen D. Jones, Borth,
Son 1,761 0 Portmaddock (ac-
William Jones 1,598 0 cepted) 1,371 5
Evan Williams & Co. 1,471 11
Engineers' certificate £1,448.]

CROYDON.—For alterations at the Lion beer-house, Pawsons-road, Croydon, for Nalder and Collyers, Limited. Messrs. R. M. Chart and Son, architects, Croydon:—
Messrs. R. M. Chart and Son, architects, Croydon:—
Goulders' executor's £175 0 Bacon £128 18
*Accepted.

CROYDON.—Accepted for shops at Surrey-street, Croydon, for Mr. C. Evans. Messrs. R. M. Chart and Son, architects, Croydon:—
Bacon, Thornton Heath £1,288 5
*Accepted.

CROYDON.—For alterations at the Cannon public-house, Handcroft-road, for Nalder and Collyers, Limited. Messrs. R. M. Chart and Son, architects, Croydon:—
Hanscomb & Smith £267 0 D. Walier £215 0
Umlant and Nicholl 227 5 Goulders' executor's* 265 0
*Accepted.

DEWSBURY.—For the erection of ten thorough houses, &c., Greenwood-street, Dewsbury, for the executor of the late T. Lacy. Mr. T. W. Speight, architect, 28, Boothroyd-lane, Dewsbury. Quantities by architect:—
Masonry:—
M. Scott £1,664 5 0 G. Horsefall and 1,560 0 0
G. Whitehead 1,646 10 1 Son
J. Oldroyd 1,684 10 0 Blackburn and 1,435 0 0
J. Pickersgill 1,624 0 0 Hannan, Heck-
Crabtree and Den- mondwick* 1,529 2 6
ton 1,606 10 0 *Accepted.

DEWSBURY.—For the erection of ten thorough houses, &c., Greenwood-street, Dewsbury, for the executor of the late T. Lacy. Mr. T. W. Speight, architect, 28, Boothroyd-lane, Dewsbury. Quantities by architect:—
Joinery:—
T. Ellison £720 0 0 M. Wilson £559 0 0
J. Blackburn 642 7 9 W. H. Clegg 552 10 0
Lyles and Son 582 0 0 Richardson and 540 0 0
The Steam Joinery Son
Co. 573 10 5 H. Garthwaite, 465 0 0
I. B. Bailey 570 4 6 Dewsbury*
T. Spedding 562 0 0 *Accepted.

DEWSBURY.—For the erection of ten thorough houses, &c., Greenwood-street, Dewsbury, for the executor of the late T. Lacy. Mr. T. W. Speight, architect, 28, Boothroyd-lane, Dewsbury. Quantities by architect:—
Plumbing:—
Dutton and Loach £97 0 4 Snowden & Sons £91 0 0
C. A. Kershaw and 72 0 0 F. Hirst 72 0 0
Sons 95 0 0 F. Knowles 72 12 10
J. Wormald 90 11 2½ J. Auty, Dewsbury* 70 0 0
*Accepted.

DEWSBURY.—For the erection of ten thorough houses, &c., Greenwood-street, Dewsbury, for the executor of the late T. Lacy. Mr. T. W. Speight, architect, 28, Boothroyd-lane, Dewsbury. Quantities by architect:—
Plastering:—
J. Bians £192 8 6 Parkinson Bros. £155 0 0
J. Richardson 168 15 0 Heckmondwike* 154 7 7
Wm. Parker 160 12 0 J. Blackburn
*Accepted.

DEWSBURY.—For the erection of ten thorough houses, &c., Greenwood-street, Dewsbury, for the executor of the late T. Lacy. Mr. T. W. Speight, architect, 28, Boothroyd-lane, Dewsbury. Quantities by architect:—
Slating:—
Wm. Shevill £159 0 0 T. Brear and Son £163 0 0
E. Hargreaves 149 0 0 W. R. Thompson 162 10 0
G. Fawcett 158 0 0 G. Hargreaves, Dewsbury (accepted) 148 10 0
J. M. Thornton 150 0 0
*Accepted.

FORRES (N.B.).—For the erection of a block of workmen's cottages, Invermerne-road. Messrs. Reid and Wittet, architects, Elgin:—
Masonry.—David Ross, Forres
Carpentry.—Robt. Cumming, Forres
Slating.—Alexander Forbes, Forres
Plumbing.—Wm. Lyon & Son, Elgin
Plastering.—Robt. Logie, Forres
Painting.—G. W. Macdonald, Forres
*Accepted.

HUDDESFIELD.—For the erection of three shops and two houses, Morley-lane, Milnsbridge, for the Industrial Society. Mr. J. Berry, architect, 9, Queen's-street, Huddersfield:—
Masonry.—A. and T. Haigh, Golcar
Joinery.—Geo. Ainley, Crossland Moor
Plumbing.—E. Mitchell, Milnsbridge
Slating.—Messrs. Anderson, Milnsbridge
Plastering.—S. Collins and Son, Stainland
Painting.—W. and P. Holroyd, High-street, Hud-
dersfield
Total, £1,200

HUDDESFIELD.—For the erection of a strong room, for the Huddersfield Industrial Society:—
Masonry.—Milner's Safe Co., Ltd., Liverpool } Total, £500.
Bricklaying.—Mark Brook, Huddersfield }
*Accepted.

ILKLEY.—Accepted for the erection of four houses, Wilton-road, for Mr. G. A. Goodrick. Mr. E. B. Johnson, architect, Ilkley:—
Masonry.—Waugh and Ripley, Ilkley £1,642 0 0
Joinery.—T. Smith, Cottingley 829 13 0
Plumbing.—Houldsworth, Ilkley 284 19 5
Plastering.—O. Lister, Ilkley 278 14 11
Painting.—Watson and Worsnop, Leeds 215 0 0
Painting.—G. W. Hampshire, Ilkley 74 15 11
*Accepted.

KINGSWOOD.—For the erection of a new hotel at Kingswood Station, Kingswood, Surrey, for Mr. H. Cosmo Bonser, M.P. Messrs. R. M. Chart and Son, architects, Croydon. Quantities by Messrs. Franklin and Andrews, 25, Ludgate-hill, E.C.4:—
J. Murray £3,200 0 0 J. A. Murray, £2,982 9 6
W. J. Wells 2,988 0 9 Kingswood*
*Accepted.

LONDON.—For proposed new buildings, Hanover Chapel site, Regent-street, W., for Mr. T. H. Brooke-Hitching. Mr. G. D. Martin, architect, 3, Pall Mall East, S.W. Quantities by Mr. W. Westmoreland:—
Wagstaff and Sons £29,649 Perry and Co. £27,666
A. Kellett 29,649 H. and E. Lea 27,160
G. H. and A. Bywaters 28,880 H. and E. Lea 27,145
Falkner and Sons 28,777 Greenwood 27,005
Dove Brothers 28,475 H. Williams 26,999
Grover and Son £2,775 J. Carmichael* 26,785
*Accepted.

LONDON.—For pulling down old buildings and erecting new warehouses at Brooks' Wharf, Upper Thames-street, for Messrs. Robt. Warner and Co., Limited. Mr. Thos. H. Reigate:—
J. A. Murray £1,710 0 R. Killick £1,255 0
J. Waycott 1,500 10 J. J. Carrick 1,250 0
F. Buckett 1,389 0 W. Bageley & Sons* 1,240 0
W. J. Wells 1,365 0
*Accepted.

SOUTHAMPTON.—Accepted for the erection of lock-up shop and store in Beval's Valley, for Mr. H. H. Emanuel, Messrs. Jurd and Sanders, architects, Portland-street, Southampton:—
Oake and Sons £200
*Accepted.

SOUTHAMPTON.—Accepted for the erection of shop and dwelling-house in Onslow-road, for Mr. H. H. Emanuel, Messrs. Jurd and Sanders, architects, Portland-street, Southampton:—
G. F. Hedges £100
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G. F. Hedges £100
*Accepted.

Nixon, architect. Quantities by Mr. E. A. B. Crockett, 11 Pancras-lane, E.C.1:—
Higgs and Hill £22,444 E. Lawrance and Son £20,870
Holland and Hannen 21,982 Patman and Fother-
William Downes 21,870 ingham 20,821
John Mowlem and Co. 21,750 Perry and Co. 20,790
Kilby and Gayford 21,736 Peacock Bros. 20,400
Ashby and Horner 21,715 John Greenwood* 15,591
Jas. Smith and Sons 21,000
*Accepted.

LONDON.—For the erection of a block of residential flats on the site of Sandwell House, West End-lane, West Hampstead. Messrs. Palgrave and Co., architects, Westminster. Quantities by Mr. Geo. Stephenson:—
Holloway Bros. £14,333 Chessum and Sons £13,363
Patman & Fothering- ham 14,100 Perry and Co. 12,886
Allen and Sons 13,975 Yerbury and Sons* 11,949
*Accepted.

MITCHAM.—Accepted for the erection of an engine-house at Messrs. Norman and Smee's Varnish Factory, Church-road, Mitcham. Messrs. R. M. Chart and Son, architects, Croydon:—
J. Burgess, Wimbledon £170
*Accepted.

MORDEN.—For the erection of stables at the "Laurels," Morden, for Mr. Gilliat Hatfield. Messrs. R. M. Chart and Son, architects, Croydon:—
J. Burgess £240 0 Howard and Sons £235 0
Stockbridge 297 0 H. Haydon, Mitcham* 272 10
*Accepted.

REIGATE.—For proposed house, Underhill Park, Reigate, for Mr. G. Taylor, Mr. C. E. Salmon, architect, Bell-street, Reigate:—
J. A. Murray £1,710 0 R. Killick £1,255 0
J. Waycott 1,500 10 J. J. Carrick 1,250 0
F. Buckett 1,389 0 W. Bageley & Sons* 1,240 0
W. J. Wells 1,365 0
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*Accepted.

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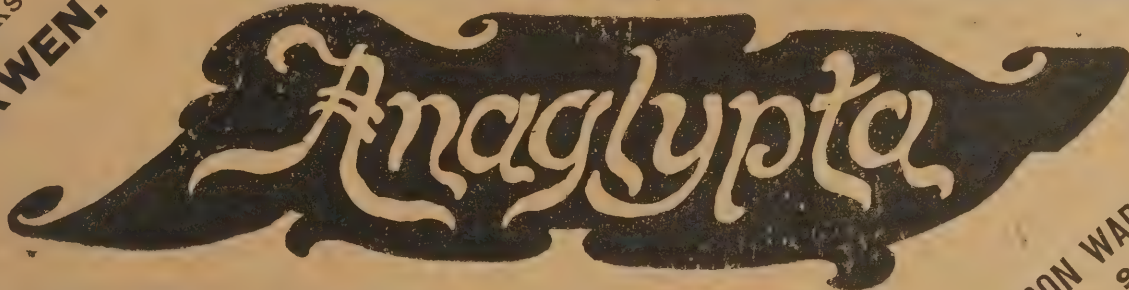
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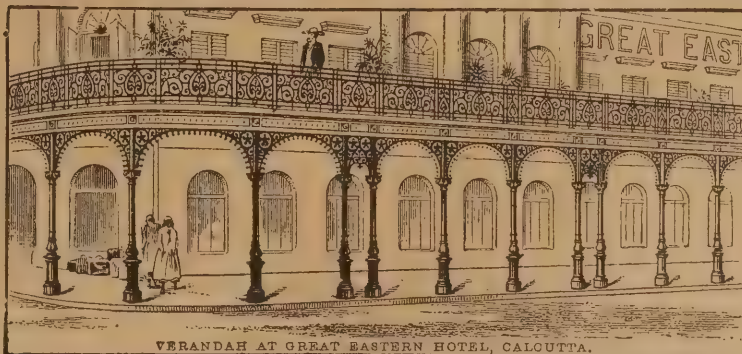
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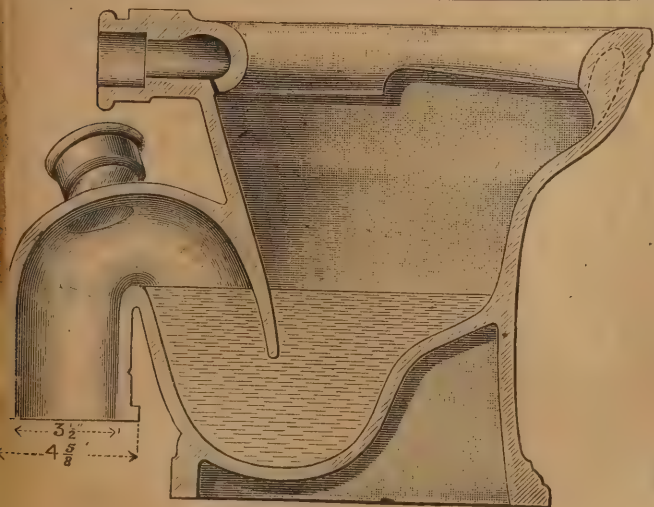
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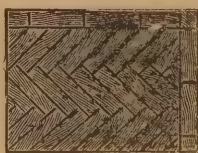
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POLICE STATIONS AND PRISONS.

BY GEORGE H. BIBBY.

I.—INTRODUCTION.

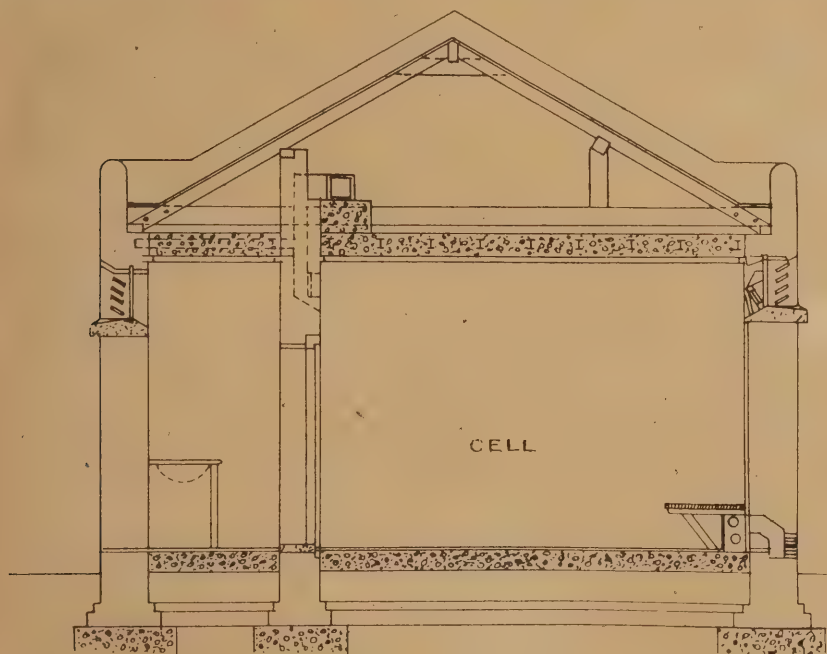
IN Bridge Street, Blackfriars, was situated the Bridewell Hospital. The site was once occupied by a palace where Cardinal Wolsey resided, but later, and in the reign of King Edward VI., the establishment was endowed as a hospital "for the correction and punishment of idle vagrant people, and

at classification, the plan and the construction of the buildings rendering this difficult or impossible; the atmosphere was pestilential by reason of the fœtid breaths of beggars, drunkards, and diseased or filthy vagrants. Each ward was under the care of a superintendent, or keeper, whose remuneration depended upon the produce of the prisoners' work, and by the sale to them of spirits, tobacco, and other articles. The accommodation seems to have been chiefly in the form of day, or workrooms, connected with adjoining dormitories. There can be no doubt that the poorer prisoners, who could not afford to purchase food, &c., from the keepers, were treated with harshness and cruelty, perhaps almost as

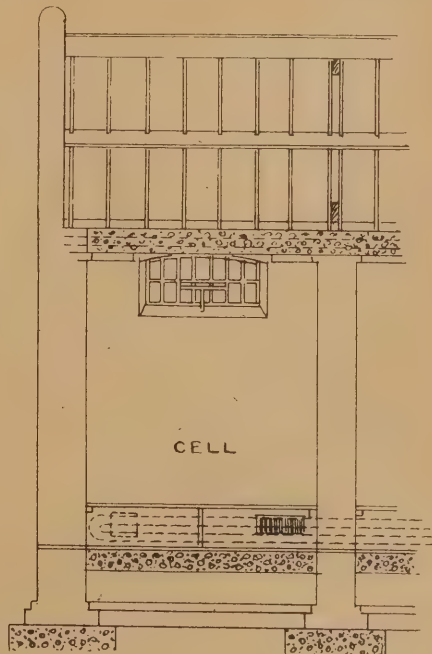
such dark and unwholesome cells, and forthwith placed in the dock, in the strong light of a court, and before a large assemblage, without preparation, were not unlikely to be placed at a very unfair disadvantage. These cells may still exist, but, if so, it is probable that they have been improved.

At the present time the regulation size of cells for prisoners, in this country, is 13ft. long, 7ft. wide, and 9ft. high, thus giving an area of 91ft. and 819 cubic feet of space. In France and Russia the cells are smaller, being from 10ft. by 6ft., to 10ft. by 5ft., or even less.

At the Perm prison, in Russia, a room 27ft. long, 19ft. wide, and 10ft. high, is considered adequate as a residence for thirty-one prisoners,



LONGITUDINAL SECTION THROUGH CELL.



TRANSVERSE SECTION THROUGH CELL.

FIG. 1.

for setting them to work that they might, in an honest way, take pains to get their own livelihood." During the eighteenth century this prison appears to have been used, not only for the City of London, but also for the entire County of Middlesex. During a considerable period there can be no doubt that the Bridewell was a complete sink of iniquity—a den that could have no other tendency than to plunge the immoral, if possible, into a more profound state of demoralisation, and steep the wicked still more deeply in wickedness. In the long, low, and dark wards, persons of all ages, both sexes, and every degree of crime, were mingled without the slightest attempt

great as is common in Russian and other foreign prisons at the present time. But even at the time when the London County Council took over the Clerkenwell Sessions House from the County of Middlesex many of the cells in the basement (for prisoners waiting trial) were merely narrow coffin-like receptacles, unfit even for the temporary purposes for which they were used, while the insanitary closet arrangements were offensive in the extreme. As these cells were used for the detention of persons waiting trial, and not for those under sentence, many innocent prisoners must frequently have suffered, and it will be recognised that prisoners, suddenly called from

who thus are allowed a cubic space of about 165ft. each.

Now, while an English prisoner has a cell with a capacity of 819 cubic feet, a vagrant or tramp confined in a workhouse cell is frequently only allowed a cubic space of 360ft., the size of his cell being about 9ft. by 4ft. by 10ft., with an area of 36ft.

These figures show that the minimum accommodation for vagrants in workhouses compares very unfavourably with that provided in modern English prisons, and the latter also contain cells which have one-third more area than the lunatic asylum allowance for rooms for single patients.

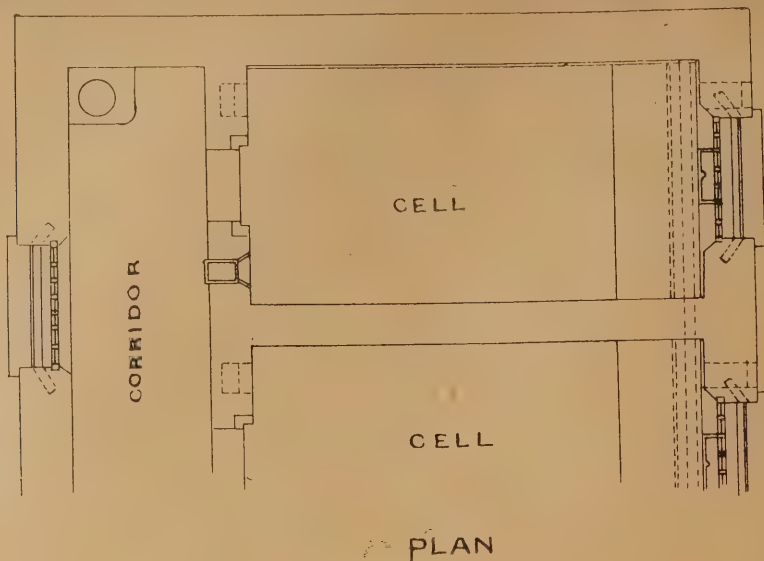


FIG. 1A.

It is therefore obvious that cell accommodation under modern regulations is most costly in this country, in prisons or lockups, and that lunatic asylum single rooms exceed in cost the cells for vagrants in workhouses; thus the criminal is allowed more fresh air to breathe than either the lunatic or the able-bodied pauper!

If no water-closets be fixed in the English cells, the cubic space in these must be not less than 600ft., but, if otherwise, there must not be less than 819 cubic feet. It will therefore be seen that under all circumstances the provision for cubic space in cells is far more liberally provided for by the prison authorities than by the Local Government Board. Under the provisions of the Local Government Act, 1888, all police stations, justices' rooms, lock-up houses, judges' lodgings, assize courts, county halls, and shire halls, are now vested in the County Councils of their respective districts, but the County Council must, however, provide such accommodation and rooms as may from time to time be determined by the Standing Joint Committee of the Quarter Sessions and the County Council to be necessary and proper for the due transaction of business, the custody of prisoners awaiting trial, or removal after conviction, and other public purposes. The County Council may deal freely with these buildings, and may, with the consent of the Local Government Board, alienate them. There is nothing, therefore, to prevent such authorities from demolishing unsuitable or insanitary police stations, and erecting in their place suitable buildings of a modern and improved character, subject to the approval of the Standing Joint Committee.

(To be continued.)

THE new Refuse Dispatch Works erected by the Glasgow Corporation at Haghill, Parkhead, have been opened. The ground, selected as being the most suitable in the locality, extends to 15,192 square yards. Of that 11,012 yards are occupied by the works, leaving 4180 yards which can be utilised for feuing purposes. The cost of ground, buildings, machinery, and railways, and including the formation of a new street, amounts to about £2000. There are five furnaces for the cremating process, each with a firegrate area of 56 square feet. Steam is generated by the heat from the furnaces not only for driving the machinery for treating the refuse, but also for the lighting of the whole station by electricity. It is eighteen years since the Corporation decided to have refuse works, and there are now four such works in the city. Their total cost has been £126,000. Additional works are contemplated in the north-western and south-eastern districts.

DILAPIDATIONS.*

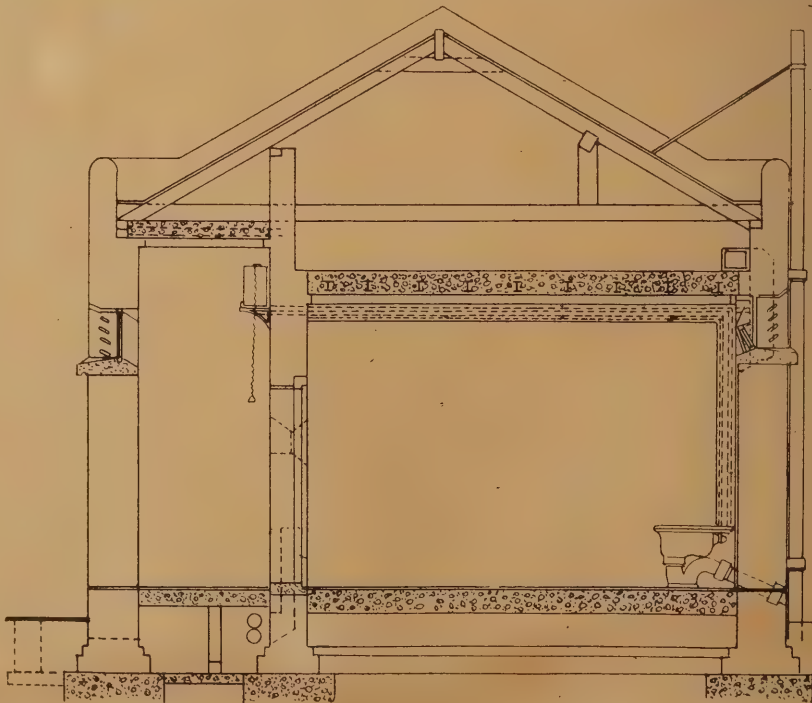
BY PROF. HENRY BUSHELL, F.S.I.

(Continued from page xxxi.)

IN considering the procedure necessary to schedule the dilapidations, it may be well to point out that this may be done either by the lessor's surveyor alone, or by the surveyor for each party surveying together, and agreeing, so far as possible, on the dilapidations and amounts; their "differences" may possibly be much lessened in consequence, and matters considerably expedited. In the latter case it would be prudent before commencing to schedule, to agree on a third surveyor or umpire to settle any differences. A somewhat recent work on dilapidations states that "surveyors settle ninety-nine hundredths of the dilapidation cases that arise without an appeal to the Courts," and a sentence spoken by the

* A paper entitled "The Practical Application of the Principles and Law of Dilapidations," read before the Auctioneers' Institute.

President in his inaugural address, to the effect that "competent surveyors, with open and candid minds, usually settle their cases; it is not always a sign either of wisdom or skill to appeal either to an umpire or a jury, although, at times, genuine differences of opinion in difficult cases make either one or the other imperative," serve to aptly illustrate the force of argument in that direction without any expression of my own, although I might be permitted to add that, from personal experience, I can endorse such to the full. If the first method be adopted, a schedule should be served on the lessee at or near the expiration of the term, with notice to repair, in accordance with the terms of the lease. It may be a matter of expediency to both parties if they can agree an amount in satisfaction of the dilapidations. The production of the schedule for the lessor to serve on the lessee is of such vital importance that I venture to emphasise the care, practical skill and judgment necessary when surveying for that purpose, and for deciding, after full consideration of the covenants and all the circumstances affecting the holding, the actual dilapidations together with the extent of such and their value. The original construction, type of building, and that all-important point, its age, the neighbourhood, and the degree or quality of repair calculated to satisfy the claims of that factor in the case who follows after, viz., the "reasonably-minded tenant" of the class who would be likely to take such premises, must all receive that proper amount of consideration which each demands to produce an "equitable" result. Personally I consider that the surveyor ill serves a client's interests, and is wanting in prudence, who, in cases of a vexatious nature, shows more zeal than judgment, and, yielding to flights of rhetoric or imagination, shelters himself behind general or sweeping clauses. These clauses themselves reveal a glaring inconsistency between the fabric itself and the covenants of the lease. I readily grant that, in scheduling dilapidations, certain general clauses are unavoidable, nay, are even desirable, but the flagrant misuse of whole sentences of formidable and irrelevant matter, is at least a questionable method of procedure. A schedule should call for as much either in point of quantity or quality in the way of reparations as can be demanded in view of all the facts, and no more, but the demand should be in terms clear, concise, and practical, and



LONGITUDINAL SECTION
THROUGH CELL

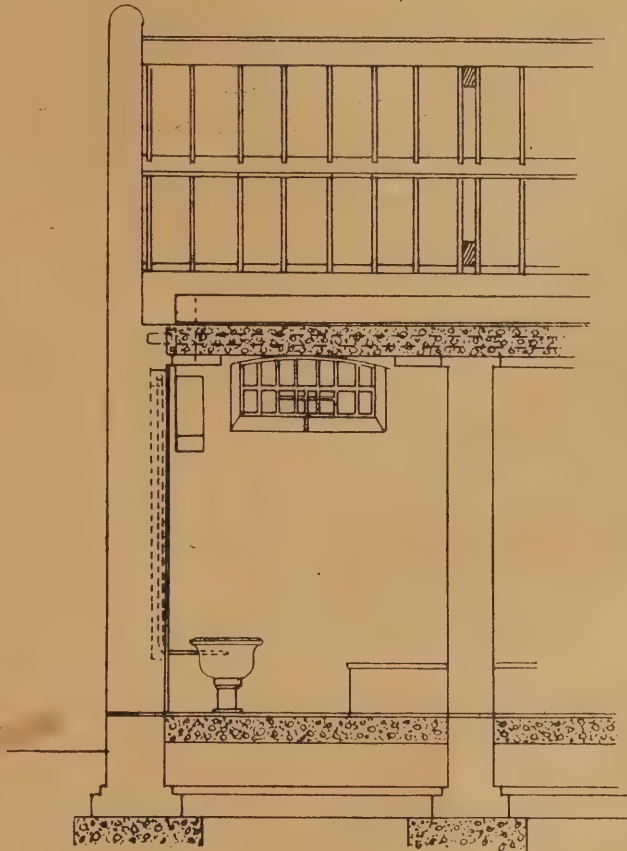
FIG. 2.

only a document prepared on the lines which I have indicated in the foregoing is a *bona fide* schedule, or one which will enable the surveyor to creditably undergo the searching examination of counsel. It must not be supposed that the schedule will fulfil the functions of a working specification, which alone in detail directs how certain work is to be performed, the quality of materials to be used, the market value of articles to be selected (to replace damaged or broken ones), and the constituent parts of materials when used in a partly prepared or compounded state. Any apparent misunderstanding in this respect, to my mind, suggests a not too clear conception of the real position. It is not customary, when serving a schedule of dilapidations on a lessee, to accompany such by a claim or to give an amount, although I consider it an advantage to the surveyor for the lessor, when taking the schedule, to assess the items. Notably those which may be termed the "spot" items are, of necessity, valued on the premises when the defect is under examination; other matters, of a more or less general order, may be valued at a later stage, or when completing the statement. In the matter of assessing dilapidations, it is unnecessary for me to expound the principles of pricing building artificers' works, as I made an attempt to do so in a previous paper, and my views upon this important section of work were then demonstrated. Much as I regret it, and although I have since had nearly two years to meditate on the subject, I see no reason to change my views. Further, as reference was then made to the point, I may be excused for advancing a strong belief that a quantity surveyor, properly qualified with a complete knowledge of the building trades, and provided he has a sufficient grasp of the legal effects of covenants, is one eminently adapted to make a capable dilapidation surveyor. I should like briefly to allude to an important case of dilapidations which bears on this particular point. A town house (not far from Hyde Park) was held under lease for twenty-one years. The term had expired, and I was instructed to survey the dilapidations for the purpose of making a claim. This was done, but there being considerable difference between my valuation and that of the surveyor acting for the lessee, the matter was referred to arbitration. The arbitrator (an architect of considerable reputation in the City) stated at the hearing that a very proper course had been taken by the surveyors in measuring the whole of the premises for the purposes of the claim. He would have done the same thing himself. Even the two surveyors' measuring books were tendered in evidence, and the measurements compared. I should like to caution the student of dilapidations against the improper use of price-books; for while admitting the excellency of these productions for reference, no price-book can, I

think, be regarded as a remedy for every individual ill that arises, without any consideration of the specific treatment which a case may demand. In fact, I go further, and have the strongest objection, generally speaking, to the adoption of such mechanical methods, and hold that in the main, even dilapidations should command an exacting system of pricing, with something beyond a lump sum, to indicate the argument. A builder's estimate, however, should not be taken for granted as conclusive evidence of the value of the dilapidations without proper investigation, but it often affords a good ground for argument. Moreover, in making a claim there are often special items to be included, such as undue depreciation of the fabric through neglect, or waste, questions as

to lessee's liability to pay rent during the execution of repairs, when done after the expiration of the term. The advantages of a joint survey to schedule dilapidations are considerable. With a qualified surveyor representing each interest, it is more than likely that a much more speedy and equitable settlement will follow. The majority of the dilapidations are agreed *en route*, and where lump sums are absolutely necessary, they should be agreed upon, or at any rate valued, on the spot. I certainly think that every schedule should carry an endorsement by the surveyor, which, in the case of a reputable practitioner, should be some guarantee of its accuracy, as is the case with bills of quantities prepared by well-known surveyors.

(To be continued.)



TRANSVERSE SECTION
THROUGH CELL

FIG. 2A.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Jan. 15	Archiestown, Scotland—Alterations on Two Houses ...	Congregational Church Committee ...	D. Maclean, Blacksmith, Archiestown.
" 15	Harwich—Additions to Schoolroom, Pulpit, &c....	Guardians ...	J. W. Start, Architect, Colchester and Harwich.
" 15	Cette, France—Construction of Theatre ...	M. N. Carlisle ...	Municipal Authorities, Cette, France.
" 15	Warminster, Wilts—Erection of Vagrant Wards ...	Trustees of Headborough Estate ...	The Master, Board-room, Union Workhouse, Warminster.
" 15	Workington—Two Semi-detached Villas ...	Royal Isle of Wight County Hospital ...	W. G. Scott & Co., Architects, Victoria-bldgs, Workington.
" 17	Brynawr, Wales—Erection of County School ...	Town Council ...	J. Thomas, 194, King-street, Brynmawr.
" 17	East Dereham, Norfolk—Erection of Town Hall... ..	Gas Committee ...	G. J. and F. W. Skipper, 7, London-street, Norwich.
" 17	Elgin—Erection of Cottages ...	School Board ...	A. and W. Reid and Wittet, Architects, Elgin.
" 17	Ryde, Isle of Wight—Alterations, &c., to Infirmary ...	Corporation ...	J. Fardell, The Offices, Market-street, Ryde, Isle of Wight.
" 17	Turrit, Aberdeen—Church Buildings ...	County School Governors ...	D. and J. R. M'Millan, 211, Union-street, Aberdeen.
" 18	Dover—Erection of Boiler House, &c. ...	Guardians of Hackney Union ...	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 18	Heywood, Lancs.—Supply of Fireclay Goods ...	Urban District Council ...	W. Whatmough, Gas Manager, Municipal Bldgs., Heywood.
" 18	Udmore, near Rye—Additions to School ...	Cricket Club ...	H. J. Jeffrey, 93, High-street, Rye.
" 19	Leeds—Erection of Bridge (excepting ironwork) ...	Guardians of St. Saviour's Union, Surrey ...	City Engineer, Municipal Buildings, Leeds.
" 19	Llanfawr Caerinion, Wales—Erection of School... ..	County School Governors ...	H. Feather, Architect, Andrews' bldgs., Queen-st., Cardiff.
" 19	London, N.E.—Alterations to Infirmary Ward ...	County School Governors ...	F. R. Coles, Clerk, Homerton, N.E.
" 19	Chiswick—Purchase, Pulling Down, & Removal of Houses ...	Guardians ...	A. Ramsden, Surveyor, Vestry Hall, Chiswick.
" 20	Glossop—Erection of Cricket Pavilion ...	Corporation ...	E. G. Hawke, Architect, Bank-chambers, Glossop.
" 20	Huddersfield—Alterations, &c., to Shop Premises ...	Guardians ...	J. Kirk and Sons, Architects, Huddersfield.
" 20	London, S.E.—Repairs, &c., to Infirmary ...	Guardians ...	G. D. Stevenson, 13 and 14, King-street, Cheapside, E.C.
" 22	Blanaul Pestinios, Wales—Erection of Schools ...	County School Governors ...	Willink and Thicknesse, 14, Castle-street, Liverpool.
" 22	Boat-of-Garten, Scotland—Erection of Villa ...	Guardians ...	D. Macpherson, Boat-of-Garten, Scotland.
" 22	Flushing, Cornwall—Erection of School Buildings ...	Corporation ...	W. Swift, 25, Lemon-street, Truro.
" 22	Lochnaben—Church Alterations ...	Guardians ...	T. E. Watson, National Bank, Lochnaben.
" 23	Cullingworth—Thirteen Houses ...	Corporation ...	D. Weatherhead, 55, Devonshire-street, Keighley.
" 23	Blackburn—Erection of Fire Escape Staircase ...	Guardians ...	J. Aspinall, Architect, Victoria-street, Blackburn.
" 25	Bootle, Lancs.—Erection of Lodge ...	Corporation ...	Borough Engineer, Bootle, Lancs.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Jan. 25	Burnley—Electric Light Station Work	Lancs. and Yorks. Railway Co.	G. H. Pickles, Borough Surveyor, Town Hall, Burnley.
" 25	Houghton, Lancs.—Erection of Railway Station, &c.	Markets Committee	Engineer, Hunt's Bank, Manchester.
" 25	Leeds—Erection of Basement of Market	Commissioners of H.M. Works	W. Hanstock, Architect, Branch-road, Batley.
" 25	Winchester—Enlargement of Post Office	Guardians of Holborn Union	R. B. Brett, H.M. Office of Works, 12, Whitehall-place, S.W.
" 26	Mitcham, Surrey—Erection of Visitors' Room, &c.	Bromley Union Guardians	C. E. Vaughan, 25, Lowther-arcade, Strand, W.C.
" 27	Farnborough, Kent—Extension of Infirmary Buildings	Parks and Baths Committee	J. Ladds, 7, Doughty-street, Mecklenburgh-square, W.C.
" 29	Wolverhampton—Construction of Shelter	School Board	R. W. Bradley, Borough Engineer, Wolverhampton.
" 31	East Ham, E.—Erection of School Buildings	London County Council	J. Curtis, 120, London Wall, Moorgate-street, London.
" 31	London, S.W.—Erection of Two Refreshment Houses	Town Council	Architect's Department, County Hall, Spring-gardens, S.W.
Feb. 1	Southampton—Erection of Hospital	Grammar School Governors	Greenway and Smith, 21, Queen Anne's-gate, Westminster.
" 1	Dudley—Erection of School, &c.	Guardians of Festiniog Union	Woodhouse and Willoughby, 100, King-street, Manchester.
" 4	Pearllyn Deudraeth, Wales—Vagrant Wards, Boiler-house, &c.		W. W. Thomas, 15, Lord-street, Liverpool.
" 10	Shanghai, China—Supply of Portland Cement		Secretary of the French District, Shanghai.
" 10	London, N.—Erection of Infirmary	Guardians of St. Mary, Islington.	W. Smith, 65, Chancery-lane, W.C.
No date.	Burnley—Reconstruction of Licensed Premises	J. Grimshaw, Limited	C. Parsons, 9, Grimshaw-street, Burnley.
"	Island of Innisbofin, Ireland—Erection of School, &c.		Rev. J. M. Fadden, P.P., Gleng, Gortahork.
"	Llandrindod Wells—Erection of Bath-rooms		A. B. and W. S. Deakin, Architects, Llandrindod Wells.
"	Leeds—Erection of Shop Premises	R. Hudson	J. W. Thackray, 3, Rossington-place, Gathorne-ter., Leeds.
"	Rawmarsh, Yorks.—Erection of Three Houses		A. S. Snell, 22, Southampton-buildings, Chancery-lane, W.C.
"	Leamington—Labour of Excavating, &c.		R. Hammond, Ormond House, Great Trinity-lane, E.C.
"	Belfast—Two Shops and Five Houses	J. Kennedy	W. J. Moore, Architect, Ann-street, Belfast.
"	Belfast—Additions to Inn	J. Townsley	W. J. Moore, Ann-street, Belfast.
"	Belfast—Thirteen Houses and Shop		W. J. Moore, Ann-street, Belfast.
"	Belfast—Alterations, &c., to Licensed Premises	J. O'Neill	W. J. Moore, Ann-street, Belfast.
"	Belfast—Rebuilding Licensed Premises	M. J. Kelly	W. J. Moore, Ann-street, Belfast.
ENGINEERING—			
Jan. 15	Leeds—Construction of Steel Foul Main, &c.	Gas Committee	R. H. Townsley, General Manager, Municipal bldgs., Leeds.
" 17	Bradford—Construction of Two Steam Engines	Corporation	A. H. Gibbins, Electricity Dept., Town Hall, Bradford.
" 17	Darwen, Lancs.—Refuse Destruction Plant	Corporation	R. W. Smith-Saville, Engineer, Municipal Offices, Darwen.
" 17	London, W.—Electric Light Wiring and Fittings	St. Marylebone Guardians	A. S. Snell, 22, Southampton-buildings, Chancery-lane, W.C.
" 18	Gloucester—Electricity Works	Electricity Supply Committee	R. Hammond, Ormond House, Great Trinity-lane, E.C.
" 19	Kirkcaldy—Construction of Reservoirs, Filters, &c.	Waterworks Commissioners	W. D. Sang, C.E., Kirkcaldy.
" 19	Pencoed, Wales—Widening Bridge, &c.	Glamorgan County Council	T. M. Franken, County Offices, Westgate-street, Cardiff.
" 20	Skerlough, Yorks.—Heating Apparatus, &c.	Union Guardians	J. C. Simpson, 48, George-street, Hull.
" 22	Nantes, France—Harbour Works		Prefect of the Province of Isere, Nantes, France.
" 24	Inverness—Widening Railway Lines (Two Contracts)	Highland Railway Co.	W. Roberts, Engineer, Company's Offices, Inverness.
" 25	Castlebar, Ireland—Erection of Gasholder	Gas Company Limited	J. Sheridan, Secretary, Castlebar, Co. Mayo, Ireland.
" 31	Buenos Ayres, Argentina—Construction of Port		Legation of Argentine Republic, London.
" 31	Klipplaat, Cape of Good Hope—Railway		Agent-General for Cape of Good Hope, 112, Victoria-st., S.W.
Feb. 1	Dover—Supply of Engines	Town Council	H. E. Stilgrove, Borough Engineer, Town Hall, Dover.
" 1	Birkenhead—Two Steel Ferry Steamers	Corporation	Ferry Manager, Woodside, Birkenhead.
" 2	Birkenhead—Widening Railway	Committee of L. & N.W. & G. W. R. Cos.	Joint Engineer, Woodside Station, Birkenhead.
" 28	Brazil—Harbour Works at Recife		Brazilian Legation, London.
" 28	Guipuzcoa—Plans and Tender for Electric Tramway	Provisional Board	Commercial Department, Foreign Office, London.
" 28	Pernambuco—Port Works	Government	Brazilian Embassy, London.
No date.	Folkestone—Steam Pumps, Tanks, &c., at Baths	Corporation	R. Pope, Architect, Radnor-chambers, Folkestone.
"	Shipley—Laying Iron Piping		Red Beck Mills, Shipley.
FURNITURE AND FITTINGS—			
Feb. 14	Stratford, E.—Fittings and Furniture to Public Library	County Borough Council	F. C. Hillery, Town Clerk, Town Hall, West Ham, E.
IRON AND STEEL—			
Jan. 18	London, E.C.—Various Railway Stores	South Indian Railway Company Limited	Sir G. B. Brice, 3, Victoria-street, Westminster.
" 19	Leeds—Steel Girder Bridge	Corporation	City Engineer, Municipal-buildings, Leeds.
" 19	Leytonstone, Essex—External Iron Staircase and other Fire Appliances	West Ham Union Guardians	F. E. Hillery, Clerk, Union-road, Leytonstone, E.
" 27	Willenhall, Staffs.—Supply of Wrought Iron Fencing, &c.	Urban District Council	C. J. Jenkins, Surveyor, Council Office, Willenhall.
PAINTING AND PLUMBING—			
Jan. 25	Withington, Manchester—Painting, &c., Nurses' Home	Guardians of Chorlton Union	Porter, Union Office, All Saints, Manchester.
" 31	London, S.E.—Painting and Repairs	London County Council	Architect's Department, County Hall, Spring Gardens, S.W.
ROADS—			
Jan. 17	London, W.—Granite Kerb, York Paving, &c.	Paddington Vestry	Surveyor, Vestry Hall, Harrow-road, London, W.
" 17	London, W.—Supply of Broken Granite	Paddington Vestry	Surveyor, Vestry Hall, Harrow-road, London, W.
" 17	Spennymoor, Durham—Paving, Kerbing, &c.	Urban District Council	G. W. Rogers, A.M.I.C.E., Silver-street, Spennymoor.
" 17	Stanley, Durham—Formation of Streets	Urban District Council	J. Routledge, Surveyor, Council Office, Stanley.
" 18	Rugby—Repairs of Highways	Urban District Council	D. G. Macdonald, Surveyor, Rugby.
" 18	St. Helens, Lancs.—Supply of Granite Setts, &c.	Highway Committee	J. C. Broom, Borough Engineer, St. Helen's, Lancs.
" 18	Bromley, Kent—Sewering, Levelling, Paving, &c.	Urban District Council	Surveyor, District Council Offices, Bromley, Kent.
" 19	Homerton, N.E.—Roadway	Hackney Board of Guardians	F. R. Coles, Clerk, Homerton, N.E.
" 19	Fulham, S.W.—Making-up and Paving Road	Vestry	C. Botterill, Surveyor, Town Hall, Walham Green, S.W.
" 24	Beckenham—Quartzite and Guernsey Granite	Urban District Council	J. A. Angell, Council's Offices, Beckenham.
No date.	Birmingham—Making Roads		W. Roberts, 37, Waterloo-street, Manchester.
"	Cardiff—Roads and Sewer Works		Veall and Sant, 5 and 6, Arcade-chambers, High-st., Cardiff.
"	Cambridge—New Roads, Bridges, Sewers, &c.	St. John's College	J. Carter, Jonas and Sons, Market-hill, Cambridge.
"	Thom-na-Bhoird, Ireland—Road Works	Dunoon Corporation	C. J. M. Mackintosh, C.E., Borough Surveyor, Dunoon.
SANITARY—			
Jan. 15	Ballachulish, Oban, Scotland—Drainage Works	Lorn District Council	R. Macrae, Surveyor, Oban.
" 17	Coventry—Sewers, Subsidence and Straining Tanks, &c.	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 17	Stanley, Durham—Pipe Sewer, &c.	Urban District Council	J. Routledge, Surveyor, Council's Offices, Stanley.
" 17	Witham, Essex—Sanitary and other Works at School	S. Metropolitan School District Board	Superintendent of School, Witham, Essex.
" 19	Glossop—Sewage Outfall Works	Corporation	Lomax & Lomax, 19, Grosvenor-chas., Deansgate, Manchester.
" 19	Newmarket—Pipe Sewers. (Two Contracts.)	Urban District Council	T. W. Metcalf, Surveyor, Town Hall, Newmarket.
" 19	Chiswick—Removal of Refuse, & other Works & Stores	Urban District Council	A. Ramsden, Surveyor, Vestry Hall, Chiswick.
" 24	Hendon—Pipe Sewer, Manholes, &c.	Urban District Council	S. S. Grimley, Public Offices, Hendon, N.W.
" 25	Lisbon—Sewerage and Drainage Works	Secretary of State	Commercial Department, Lisbon.
" 25	Lambeth, S.E.—Egg-shaped Brick Sewer, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 31	Macclesfield—Pipe Sewers	Rural District Council	J. Thorpe, 19, King Edward street, Macclesfield.
Feb. 2	New Brompton, Kent—Construction of Drains, &c.	Gillingham Urban District Council	J. Taylor, Sons, & Santo Crimp, 27, Gt. George-st., Westminster.
TIMBER—			
Jan. 26	Ipswich—Supply of Wood Paving Blocks	Town Council	E. Buckham, Borough Surveyor, Town Hall, Ipswich.
No date.	Guernsey—Creosoted Telegraph Poles	States of Guernsey	A. R. Bennett, 44, Manor Park-road, Harlesden, London.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan. 31	Leicester—Designs and Tenders for Motor Vehicles for Collection for House Refuse	.....	Sanitary Committee.
Feb. 1	Rugby—Public Clock	.....	Urban District Council.
" 7	Wolverhampton—Designs and Tenders for Motor Vans for Street Scavenging	.....	Public Works Committee, Wolverhampton.
" 7	Eastleigh—Plans of Public Offices	£52 10s., £21	Urban District Council.
" 14	Barrow-in-Furness—Designs for Technical Schools	£50, £20	Corporation.
Mar. 1	Newcastle-on-Tyne—Infirmary (Local Architects)	(No First), £150, £100, £50	Building Committee.
" 14	Berwick-on-Tweed—Plans of Police Station & Lock-up	£50, £25	Corporation.



An Architectural Causerie.

Multiplex Regulations.

AMONGST the many troubles of the modern architect none are more vexatious than the multiplicity of regulations to which he has to conform, and their divergence, often upon matters of little or no importance, in different and even in neighbouring districts. First there is, of course, the Common Law of the land to comply

found to differ widely on two sides of the same street, if the two sides happen to be in different parishes, causing unexpected difficulties to arise, even where absolutely the same conditions prevail. Then every Company supplying a general commodity has its own rules—the gas companies, water companies, electric lighting companies, and hydraulic power companies—and all have to be complied with rigidly if these commodities are used. Just outside the metropolitan limits the confusion is even worse. London, large as it is, is completely encircled by a series of urban districts, each with its own bye-laws and its own formalities, many of these districts being populous and important—most important from the architect's point of view, as it is in them that most building is going on. If these districts could adopt the Building Act in its entirety, even if they administered it by their own officials, it would not only assist the architect, but would be greatly to the benefit of the architect, and would save the building public immense sums of money

country. The further from the metropolis, or some other great centre, the more lax are the regulations as a general rule, and the less efficient the official supervision in the public interest: and where there is ignorant laxity there is frequently ignorant harshness also upon some immaterial point. Doubtless, things are much better than they were before the days of bye-laws and of urban surveyors; but the present system is practical chaos, calling aloud for simplification and unification, combined with intelligent and highly trained supervision, independent of local control. But even this is not all. Buildings for special purposes have frequently to comply with the regulations of other independent bodies as well as with those already mentioned. A denominational school, for example, must comply with the rules of the Education Department, besides satisfying the surveyor of any body making a money grant in aid of its erection; while there are, again, separate regulations, administered by separate bodies, for hospitals, asylums, and almost every special class of building. As to a



OLD HOUSE AT IFIELD. DRAWN BY E. BECKITT LAMB.

with in regard to easements and rights of light; but this, being of universal acceptance, is no hardship. Local building bye-laws, however, differ widely. Within the metropolitan area the London Building Act holds good, and this alone is quite enough for any one practising man to have to master; but even this does not cover all points, and the vestry bye-laws may very possibly be

in the aggregate. But this is not permissible; they each have to formulate their own bye-laws, founding them, certainly, on the "model" set issued by the Local Government Board, but not precisely alike, and differing in unexpected places; while the rules as to deposit of plans and the filling up of forms are often most arbitrary and unnecessary. And thus it goes on all over the

vicarage, what with the Ecclesiastical Commissioners, Queen Anne's Bounty Commissioners, and other bodies concerned, the hapless architect escapes well if his hair does not turn grey before his first is completed. Of course, after the first of any special class, things become easier, the routine being known; but the annoyance caused by this multiplicity of rules remains. G. A. T. M.

"The Cantaliver Epidemic."

THE architect who lays claim to the title of artist is generally considered, by the ordinary layman, as a dreamer of dreams, a fashioner of fancies, altogether a most unreliable person. However able he may be to conceive a beautiful building, the primary laws of Architecture are brushed aside should they interfere with some pet fad, and construction is relegated to perdition should it oppose the design of an artist. When, therefore, one turns to the work of the practical "architect and surveyor," one naturally expects to find a sincerity in construction and truthfulness in design which will amply atone for any lack of those æsthetic qualities which an artist might supply. There is, however, a surprising modesty which one had never suspected in these gentlemen who are the exponents of nineteenth century "Architecture." The ostentation of the Greeks who revelled in beautifying the construction of their buildings is as far removed from these practical men as the monolithic style of the Egyptians. With a persistency of purpose worthy of better effects, they hide their light under a bushel, and the manner in which they achieve their wonderful results is an occult science known only to the few. Hand-in-hand with the engineer they daily sacrifice truth and sincerity upon an altar which has been reared to the great god "Expediency." In America they rejoice in skeleton structures of steel, with the interstitial spaces filled in by certain slabs of some light material; in London we can boast of a Tower Bridge, and every city can produce some huge structure apparently supported upon a vast expanse of plate-glass. The ingenuity displayed in the modern shop-front is quite appalling, creating the same sort of praise as that bestowed on a *séance* at the Egyptian Hall; yet any criticism of this method of building is met by the answer that the shopkeepers insist upon their wares being shown to the best advantage, and that it is expedient to eclipse construction in favour of an uninterrupted display in the shop window. Even from a practical point of view these shop-fronts have some objections. A writer on the recent fire in the City remarks that "large windows are one way in which fire can easily spread from one building to others opposite or near"—from an æsthetic standpoint they are absurdly incongruous. There are first principles which govern, or should govern, all Art, and these are founded on the laws of Nature. The engineer is trying to be wiser than the Creator; instead of covering construction he conceals it, which is quite a different thing. The Röntgen rays do not reveal any surprises in the construction, for example, of the human figure; the flesh, after all, is only a covering to the general supporting framework of the body. We are quite sure that the engineer must lament this lack of ingenuity, and no doubt could furnish us with many improvements. At present we are suffering from a cantaliver epidemic, and the ravages of this disease have left, and will leave, indelible marks on the face of our street Architecture. Is it not high time that some means were employed to prevent the further spread of infection? The revival of half-timber construction, so prevalent in modern domestic work, is a praiseworthy protest against the inroad of the engineer, yet cringing to by-laws and Building Acts, even this style of building is often a sham. Exposed "construction" which does not construct is a greater fraud than that of the hidden cantaliver. The original examples of timber houses might, indeed, lay themselves open to the objection that they are unnecessarily anatomical; that a man does not wear his ribs outside his body; why, therefore, should framing and studding be exposed to public

view? Even if there is nothing in this sort of criticism, the undeniable beauty and truth of these buildings cannot be utilised in modern street Architecture. It is evident we cannot expect the man of expediency to sacrifice his cantaliver for arch or column; perhaps, therefore, after all, we shall have to turn, if we want truth and sincerity in design, to the "dreamer of dreams" and the "fashioner of fancies," the architect who calls himself an "artist." H. S. M.

The Artist Joyboy.

JOYBOY—that was the name by which he was known to the other residents at Pagan House. Where he came from originally, who his parents were, or whether he had any, no one seemed to know, nor, so far as the writer could tell, did anyone seem to care; and yet, wait, there did come a lady who claimed him as nephew—but as she was stout, and the door but small, her visits were not so frequent as Joyboy would have liked. It was not that Joyboy loved his relative, but the occasional visit afforded him an opportunity of superintending the hoisting of his supposed aunt through the narrow door opening, an event to which he looked forward with his usual glee. After all, who among the residents at Pagan House, or, for that matter, those who visited him, cared to know anything of his ancestors. Joyboy was Joyboy—unique, inimitable, and, like old Plunket, who never went home, we all loved him. An artist to his finger-tips, a man from his heart outwards, one can only liken him to a many-stringed harp, with at least three always playing; but, unlike the prosaic orchestral harp, which stands silent awaiting the hand of the musician, the harp was played from within, till Pagan House vibrated and resounded with his cheerful melodies, making even the old and broken violin, the ancient savage, and the New Woman respond in curious unison. A spectral visitor might with reason have wondered why the violin was making frantic efforts to be tuneful, why the ancient savage began to dance some mad and thrilling orgie, and the New Woman to execute the first few steps of an almost forgotten waltz, and yet it was all so clear. It was Joyboy, the harp of Pagan House, twanging on the bath. Once only within the memory of the writer did Joyboy sit silent, the strings loose and limp as if they would never again become taut and tuneful, but time brought changes, and the Pagan house that once seemed empty echoed with joyous laughter, and then Joyboy strung up the harp within, and played outrageously from morn till eve, the sounds penetrated everywhere, until the ancient one, sadly knocked up from over excitement, fled, and the world of Joyboy knew him no more. Joyboy plays on from day to day—his posters, his book, and magazine covers, his modelling are but notes from his music-book, and great ideas hover round him. Bird-like he hops from drawing-board to easel, from easel to modelling bench, the work reflecting his joyous nature. From the smallest drawing to the large sculptured prize upon which he is working or playing there lingers some trace of Nature's beauty, and some flavour of the soil, of the bird on the wing, of the wind and the sky, and much of Joyboy. G. LL. M.

AN OLD HOUSE AT IFIELD.

THE old house at Ifield, Sussex, illustrated on our front page, is part of the ancient manor of Ewehurst. The view shows only a small portion of the building, which is partly surrounded by a moat in which water still remains. The Architecture is nearly all of one date, and contains some very interesting bits here and there. The drawing is from a sketch taken some years ago.

THE ANCIENT WALLS OF ROME.

TO BE OR NOT TO BE—PRESERVED.

IF the report be true," writes Mr. H. W. Brewer to the Daily Graphic, "that the ancient walls of Rome are likely to disappear, because neither the Italian Government nor the Municipality of Rome are willing to grant the small sum needed to preserve them from destruction, it is indeed a serious matter. Now, without wishing to wound the feelings of Italians by suggesting that they might obtain the sum necessary by a little more economy in other quarters, we may, at any rate, point out that it is obviously injudicious to expend money upon excavating antiquities if you allow these already above ground to fall into decay and be destroyed. Excavations, however interesting, may in such cases of extremity be postponed, for we can trust the 'kindly earth' to preserve safely for a few years longer what she has."

PRESERVED FOR SO MANY CENTURIES.

But no power can revive ancient historical buildings which have once disappeared. Now although everyone must admit that the excavations in Rome have resulted in 'grand finds' for the archaeologist, yet it may be doubted whether they are altogether an unmixed advantage, and whether the archaeological spirit of inquiry is not occasionally gratified at the expense of picturesqueness and artistic beauty. Take the excavations at the Colosseum as an example. From an antiquarian point of view the result achieved is eminently satisfactory, but who now would think of painting the Colosseum?—yet some few years back it was one of the most romantic and lovely spots in Rome. True the stations and other mediæval and Renaissance features were no portions of the ancient classical structure, and were like the beautiful climbing plants which

CLOTHED THE VENERABLE RUINS.

were intruders, yet what an enchanting ensemble they helped to form. We do not for a moment express an opinion as to whether this work at the Colosseum was right or wrong; no doubt much was gained, yet certainly something was lost, but in preserving the ancient walls of Rome the gain is sure and the loss nil. The walls of Rome are deeply interesting; those on the east bank of the Tiber follow the lines of and are in most cases absolutely portions of the fortifications set up by the Emperor Aurelian (270-275 A.D.), though they have been restored and patched up at various times, notably by Honorius, Theodosius, Belisarius, and later by many of the Popes. They also include fragments of a much earlier date than the time of Aurelian, in fact it is presumed that incorporated among them are portions of the wall of Servius Tullius, the sixth King of Rome (B.C. 578-534): for although the walls of Servius Tullius enclosed a far smaller area, one locality at least may have been common to both. The earlier portions of the walls are

CONSTRUCTED OF FINE BRICKWORK

with a core of rubble or concrete, but the later additions are for the most part of stone. In some places these varieties of construction can be distinctly traced. Aurelian's wall was about 50ft. high, and is said to have been defended by about 300 towers. Various ancient works of Art were, and in some cases still are, attached to these walls, such, for instance, as the Pyramid of Caius Cestus and the Baker's Monument. Baking, by the way, must have been a profitable trade in Rome, if we judge from the very beautiful monument, and the particular baker in question was certainly not only a prosperous man, but happy in his domestic relations, as the inscription beneath the statue of a beautiful woman seems to imply: 'My wife, one Atistia, a most excellent woman during the whole of her life; all that now remains of her is preserved in this bread basket' (the sarcophagus). We trust that even if the Government of Italy and the Municipality of Rome are unable to protect the ancient walls from destruction means may be forthcoming from other sources."

CAMBRIDGE

AND ITS NEW GUILDHALL.

BY HUBERT C. CORLETTE.

WE hope we may be permitted to congratulate the Municipality of Cambridge on their wisdom in selecting Mr. John Belcher as the architect of the new municipal buildings which they now propose to erect. And may we express the wish that the result of their deliberations may be of more substantial advantage to the town than has been the case with previous endeavours of a similar kind. We have often, in visiting Cambridge, been struck with the more than absurd exhibition which its present Guildhall provides, and it is particularly gratifying to any lover of the magnificent university, collegiate and ecclesiastical buildings of the town to feel that now at last some

by the way, notice that it must be very gratifying to the authorities at Cambridge to find that in one of these competitions their architect has proved himself able to win, even though his brother competitors are men selected from the first rank of their Art in England. However independent any corporate body may be, it cannot but be satisfactory to feel that the wisdom of their decision and choice is warranted by results in other cases such as this.

On hearing that the design for the new project in Cambridge was on view at the present Guildhall, we took the opportunity, during a recent visit to the University town, of looking at it, and at the same time examining the existing structures, for they are not one but many attempts, conglomerate, to meet the need of proper accommodation for the civil administration. The result in itself proves the little success of these several ventures.

It will, perhaps, enable us to explain more

inexcusable and lavish waste of money, as all patching and makeshift inevitably proves itself to be in the end. These delinquencies permitted by former members of the Corporation have made, naturally, many difficulties, which cannot have been easily overcome in planning what now we may hope soon to see realised by the execution of the design we saw with so much pleasure.

This design will, we think, be a distinct addition to the attractions of modern Cambridge. It is dignified without being too severe and quiet, yet, at the same time, it has many interesting features which give it a distinct character, such as we might expect from the artist who gave to London the new Institute of Chartered Accountants, of which Mr. Reginald Blomfield said, in the Magazine of Art for March, 1895: "The Institute of Chartered Accountants is a most original and remarkable building, doubly welcome in these days, when good Architecture is the rare exception. It is undoubtedly a bold venture in



THE OLD GUILDHALL AT CAMBRIDGE. - FROM A PHOTOGRAPH.

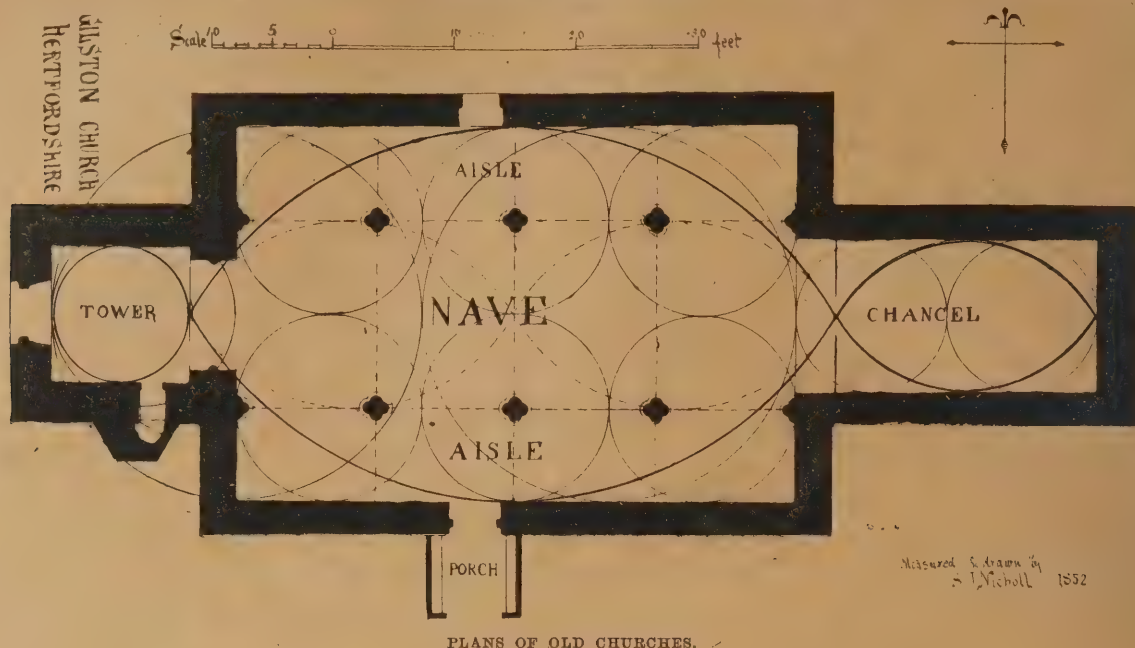
well-directed effort is being made to change the unsatisfactory condition of things in regard to its most important civic building. And we hope, further, that it may be a step which shall in some manner impede the progress there of some methods of design in other civic as well as domestic buildings. When we look at such places as the Oxford and Cambridge of to-day, despite the few excellent attempts to vie with the beautiful historic piles which must always reign supremely venerated in each, we cannot help feeling a little disappointed that a country which bewails the persistent destruction of the old magnificence of Rome, should calmly allow two of the most notable places in the world to be, with all too much impunity, made marts where wealth material is fought for in utter disregard of better things. From these few prefatory remarks we must now pass on to the main subject with which we have to deal—that is, the design which Mr. Belcher has prepared by request, and without the usual and most frequently unsatisfactory competition so-called, for the new Municipal Buildings. We might,

clearly what it is now proposed shall be done in order to overcome the present defective arrangements if we briefly notice them before saying anything particularly of the provisions comprised in the new scheme, which really, on close examination, proves to be a remarkably clever solution of a very difficult problem.

The present Guildhall proper, or Shire House, is an ugly and insignificant little building on the north side of the Market Square, which was built by Essex in 1782, not in the best manner then prevailing. To this have been attached at various times a collection of courts, departments for the other civil offices, various rooms for rather uncertain purposes, and a large public hall and free library. These have been contrived in all kinds of odd corners, with dark passages leading to them or not to them, as may have been intended—it is sometimes difficult to say which. And this, with such a waste of valuable space, and such an extraordinary arrangement in the levels of the various floors, that one is compelled to wonder who can have been responsible for such

design, but it is a venture of the right sort, guided by knowledge and capacity, and a true artistic insight into the essential qualities of Architecture. One would give whole streets full of frippery for a building designed with the courage and sincerity of the Institute of Chartered Accountants." And this, too, from the author of the lately published, masterly book on "Architecture of the Renaissance in England."

But though we say this of the external composition, we think it is necessary to know, as we do, something of the author's executed works, in order to understand fully what may be expected when it is completed in Portland stone—the material of which the front is to be built. The lines and proportions, as well as the whole grouping, have evidently been studied with a courteous regard for, and keen appreciation of, the situation in which the new pile is to stand. And this attitude of mind in a designer who is offered the opportunity and not all too pleasant responsibility—for it is so serious—of associating his work with some of the most valuable, venerable, and beautiful



PLANS OF OLD CHURCHES.

works of an earlier day, is most necessary for right success. But note the politeness, the absence of conceited self-assertion here. There is no great overawing tower and overweening presumption in the compilation, for, had there been, the University Church, which occupies a place on another side of the same market-square, might have been made insignificant by comparison. Then again, to all who are acquainted with the most valuable possessions which the Renaissance wave of the fifteenth and later centuries has left to posterity in Cambridge—a most important centre during that movement in the Arts of design as well as others—there is evidently a studied regard for the valuable aspects of tradition. For to see the suggestion for improving, without the frequent companion destruction, and then to look again at the older works in the same town based upon similar principles of design with this one, we may discover an aptitude to adopt proportions and a general scale which are in excellent harmony with the reigning beauties of the place. We should rather like to have found something to quarrel with in Mr. Belcher's production, but this courtesy and reticence disarms criticism of that kind. But we may perhaps take the liberty of suggesting that a little more subject figure-work might, under his hand, add value to the composition as a whole, especially since he has already been so thoroughly successful in this respect by his treatment of the Institute of Chartered Accountants.

The plan, after, as we learn, thirty years of procrastination, is now gathered together into a unity which will facilitate rather than obstruct the satisfactory execution of public business, and also make it possible for the Corporation to reap some benefit from their enterprise. In place of temporary erections for the comfort or discomfort of marketers and others in the sanitary sense, there are now provided lavatories and all the necessary conveniences at either end of the covered piazza, which runs from one end of the façade to the other. This, while serving the purpose of a shelter when necessary, is also useful in that it will allow carriages to set down guests at any point in its length, so that they need not be delayed as would be the case had all to drive up to one only entrance in turn. Entered immediately from this piazza is an entrance hall, on either side of which are the ladies' and gentlemen's cloak rooms, leading into a straight wide corridor, off which are various public offices and one of the lower halls.

There is another hall or large meeting room accessible directly from this main corridor by others of similar width. And arranged conveniently with regard to these halls are other retiring rooms, and some kitchen offices,

and a servery, also a secondary and private staircase which is also the direct approach to the School of Art on the top floor.

From the entrance hall just mentioned visitors would cross the main corridor and proceed immediately on up the wide flight of the grand staircase which rises by an easy gradient in two stages up to a vestibule and large crush room at the entrance to the present great hall. Grouped close to these are the robing room, the aldermen's parlour, the mayor's reception room, the council chamber, the courts and other accommodation for the use of municipal officers, with some committee rooms. But while we may admire the convenient arrangement of these various rooms, we very much admire the really splendid planning of the staircase, which is so much the more satisfactory because it has been contrived as a legitimate outcome of the necessary elements of the plan and without sacrifice of these in order to obtain so fine an effect. We do not remember having seen so good a staircase in any modern work of recent date, and shall certainly go to Cambridge for the express purpose of seeing it when the work is completed. And we hope that, for the sake of British industries, British materials may be largely used in its composition.

The lighting, ventilation, and generally masterly contrivance exhibited by these plans is a pleasant contrast to the absence of these things in the present buildings.

We thought we had found some ground for severe criticism in the absence of some room on the same level as the large hall, which could be used as a supper or refreshment room on the occasion of a ball or similar entertainment. But, upon examination of the levels in the sections and the very easy flights of the staircase, we were quite satisfied to find that the lower hall, as intended, would serve this purpose, as it is so easily accessible from the upper one in which any dancing would take place.

A new history of the Town and University has just been published for Mr. T. D. Atkinson by Messrs. Macmillan and Co. We feel that there will be more than enough material for another valuable and interesting chapter when the project we have been discussing has been completed.

An important scheme has been devised for widening the streets around the Manchester Royal Infirmary, and for setting out as an open space, to which the public shall have access, a considerable portion of the Infirmary grounds. It is proposed that the Corporation shall purchase from the Infirmary Trustees about 12,000yds. of land at a cost of £286,000.

PLANS OF OLD CHURCHES.*

By S. J. NICHOLL.

HOWEVER strong our individual predilection may be for pointed arch, traceried window and clustered pillar, as members of the Guild, we first take note of the structural evidences of ancient ritual in the church we are examining of its varied form in plan; and the development of its arrangement; in fact, of its ritualistic history; in this light every form of plan becomes of importance to us even if visits to them are only in the future.

We visited a few years ago, under the guidance of Mr. Alexander Wood, a group of churches within easy reach of Shoreham; one, that of Sompington affords us an early example of a transeptal church in which the south transept retains the original arrangements of one chapel projecting out from the eastern side; whilst in the northern transept two chapels have replaced the original form, with however a central recess between the chapels; perhaps in continuity of the primitive intention.

The Norman church at Porchester retains but one transept; this has on its eastern side the arch which once opened into a single chapel as at Sompington, a typical arrangement in its simplest form.

Another type of plan which I will only allude to, it having been described on a previous occasion (Ballintober Abbey and Variations in plan), is that of St. Lawrence, Castle Rising, which retains at the sides of its chancel arch the two recesses, apparently a continuation from the primitive arrangement exemplified in the basilica in the Cimiterium Ostriatum, just as the majority of our old parish churches still, and our new ones will, I hope, continue the aisled arrangement with terminal chapels in evidence of the perpetuity of the basilical traditions.

The transeptal arrangement with apses to the east, north, and south, seems to have been originally derived from the plan of such an edifice as that above the catacombs of Callixtus, in which Pope Sixtus II. was martyred in the year 258. It was in shape a square hall with three apses. This building, razed nearly to the ground at the time of the martyrdom, was restored in the time of Constantine, and its plan, as that of a schola or memorial hall, might have been considered more appropriate for the church of a joyful mystery than that of the tomb of a martyr and so adopted for the Church of the Nativity at Bethlehem erected by Constantine. There may be, however, doubt as to the original plan, some now

* A paper read at the Guild of SS. Gregory and Luke.

holding the idea that it may have been rebuilt by Justinian on account of present eastern position of the altar for the western position of the altar, facing of course the east, was so imperative at that period that when Constantine erected the church over the tomb of St. Paul, he had to restrain himself to the smallest dimensions on account of the limited space, 100ft. between the tomb and the eastern boundary of the site, which was the Ostian way. Later on, in 386, ampler dimensions were obtained by rebuilding westwards; the altar at the east end still retaining its original position with regard to the tomb which was undisturbed.

The noble Church of S. Sophia, in Constantinople, seems to offer authority for a great variation from the early models, but it has its apsidal recesses in evidence of conformity with the customary ritual arrangement. At first sight the western recesses would seem to be in sacrifice to the idea of architectural symmetry; but it is probable that when rebuilt by Justinian with the altar eastwards, the western recesses were renewed in reverent remembrance of the ancient arrangements; just as we see the western apses retained in Liège and in some churches on the Rhine, and which is conjectured to have been the case at Canterbury previous to the fire of A.D. 1067. Of the plan of S. Sophia we have no exact example within reach for our visits, but the outer wall of the east end of Norwich Cathedral with apsidal chapels recalls the intention.

Of another venerable type, that of the Church of the Holy Sepulchre, as repaired by the Crusaders, we have several examples in England, one at our doors in the London Temple. I exhibit a plan of the Jerusalem church made by J. J. Scoles in 1824, for comparison with that of the temple or other round church within our radius to which some day we may pay a visit.

In the consideration of these plans of old churches we must feel how closely every part is in harmony with the ritual; not merely subservient but conceived with it; and beyond this, how perfect they are as works of Art; harmonious also in proportions and symbolic in design. The plan of the Egyptian temple has been described as typical of Mystery; the ancient Greek temple as of Rationalism; and

the mediæval church as of Aspiration. This is too large a subject to do more than to mention, as is also that of symbolic and geometrical proportion. On this latter point I had the pleasure last session of raising a discussion, if not of convincing, by the exhibition of several sections of ancient churches large and small, and in continuation of the idea I exhibit a plan of a thirteenth century church—that of Gilston, Hertfordshire. I present this plan in particular because it is drawn from measurements carefully taken by myself for another purpose. It was only after I had laid it down on paper that I found out its proportions.

It will be seen by the plan that the length of the nave to the width measuring across the nave and aisles is three to two, that the total width is divided into four equal parts, two being given to the nave and one to each aisle, the length of the nave being divided into four equal parts for the four arches of the nave arcade.

The chancel, the width of which is fixed by that of the nave, is exactly two equilateral triangles in length from the eastern wall to the screen; whilst the nave and aisles together are in proportion again, that of two equilateral triangles from the screen to the square or circle which is enclosed by the tower.

I do not think these proportions were accidental, neither do I think the question to be merely academic. Coincidences of harmonic proportions in form and sound are now accepted, and may have influence on the acoustic qualities of buildings; and our neglect of the principle may be one of the reasons why our new churches do not please us as the old ones do—and therefore worthy of note in our investigations.

The altar, the universal central object in our old churches, is the one that was most thoroughly and systematically cleared away, and very few vestiges have we been fortunate enough to come across in our visitations. We measured a large altar mensa in Cobham and at All Saints, Huntingdon, which, thanks to Mr. Temple Layton, we visited in July, 1891. We noticed a simple reredos of good design at the end of the south aisle.

The moulded jamb, and two of the mullions of the four light windows, were continued downwards, so as to leave a plain space in the

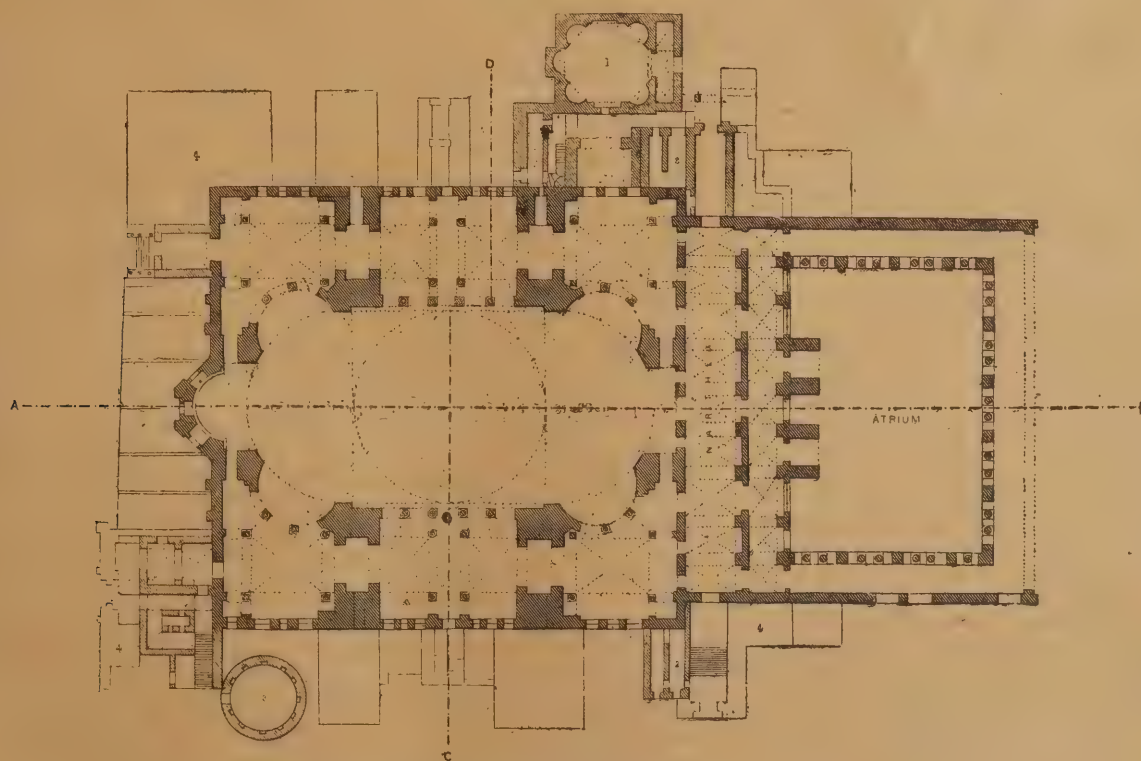
centre of 4ft. 10in., showing us the length of the altar, which was all we could be certain of.

This year I had the opportunity of examining what is known as the sealed altar slab in Norwich Cathedral, preserved through it having been placed face downwards in the pavement at the desecration. In the mensa, which is 5ft. 9in. long by 3ft. 3in. broad, there is a sinking in which a marble slab, 1ft. 10½in. by 1ft. 8½in. broad, considered to be the seal, is placed. It has been lifted, and no relics were found in the cavity, which was pretty well filled with mortar. The marble slab is placed 2ft. 8½in. from the Epistle end, and only 1ft. 2in. from the Gospel end of the altar; the inserted stone, therefore, is within 1½in. of being entirely on one half of the mensa; so that if the priest celebrated on this super-altar, which I think it was, he would be quite away from the centre of the altar.

The chapel was the Jesus Chapel, and the B.S. was reserved here; and I suggest that this singular arrangement may have been in consequence of the Presence. The priest at the altar would never be between the suspended pyx, or other form of tabernacle, and the people.

In the Church of S. Denis, Liège, I found at a side altar what, from its dimensions and the presence of the five crosses and the seal, I take to be an example of the super-altar inserted in the mensa. It is 14in. square, and the crosses are of the form so usual in mural consecration crosses, with curved spreading arms in a circle 2½in. in diameter. The relic cavity with its seal is 2½in. wide, by 2½in., and is 1½in. back from the front edge.

In the crypt of the great church at Grantham, I found an altar which had a large cavity under the top slab in the centre of the face of the altar, in which such a stone as that found in Roche Abbey, Yorkshire, may have been inserted, following what seems to have been the custom in England. I extract the description of a reliquary stone, for such it may be called, from an article by Dr. Fairbank, in the transactions of the Yorkshire Architectural Society for 1890. On the "north side of the entrance to the choir of Roche Abbey, on the site of an altar, a stone was found, a cube of nearly 9in. square on each face; on one side, covered with colour-wash, a quadrangular



GROUND PLAN OF ST. SOPHIA, CONSTANTINOPLE

reduced from Salzenberg's Work

Scale of 0' 10' 20' 30' 40' 50' 60' 70' 80' 90' 100'



JOSEPHVS IOANNES SCOLES
ARCHITECTVS ANGLVS

MENS' ET DELIN' A.D. 1825.

PLANS OF OLD CHURCHES. TRACED FROM THE ORIGINAL DRAWING BY S. J. NICHOLL.

portion had been removed and replaced; within the cavity was found a small capsule of sheet lead 2½ in. long and one across, and inside of this were two small fragments of bone and two portions of a link of chain armour." With these evidences I am inclined to believe that the so-called seal at Norwich was a super-altar let into the mensa as at Liège, and that the relics were, in the usual English form, in the body of the altar. Another form is evidenced in an illuminated letter in a MS. in which the consecrating bishop is represented as replacing a portion of the mensa which has been cut out from the front top edge; and a stone, if it is an altar-stone, which I saw in the cloisters of St. Croix, Liège, may have been so consecrated. It is marked with six crosses—three in a line at either end; the front-central portion has been cut entirely away and is missing.

When in our visit of June, last year, we saw St. Andrew's, Great Staughton, Bucks, our attention was drawn to a scripture in an old form, well carved on an oak panel, now forming part of a bench, but which probably was a portion of a parclose, "Of your Charyte Pray for the good aistate of Oliver Leader and Frances hys wyfe. Anno Dni 1539;" and we constantly come across such evidences, not merely of the continuance, but of the growth, of Catholic devotion and faith up to the very moment of the suppression. An example is the tomb of John Spelman, an ancestor of the antiquary who died in 1545, in Narborough Church, Norfolk. It is an Easter sepulchre of the simplest form, but with a representation of the Resurrection; indeed, in Greene's "History of Worcester," it is shown that the ceremony of the Sepulchre survived until the second year of Edward VI.

For other notes on the Easter Sepulchre I go back to our visit to Shoreham and its neighbourhood, when we examined what is known as the Lewknor tomb of Tudor character in the church of Kingston-by-Sea.

It is an altar tomb with arch canopy, having in the centre under canopy a mutilated sculptural group of the Resurrection, on the sinister side of the Blessed Trinity, and on the dexter side of our Lady of Pity. In the frontal of the tomb there are three shields in quatrefoils, left in high relief as if intended for carved bearings, never executed. In the apex there is a carved demi-angel holding a shield, mutilated like the rest of the sculpture, and therefore probably having been of religious significance. The Lewknor arms, "argent three cheyrons azure," are on a shield in the glass of an adjoining window and on the beam of the rood across the chancel arch.

In Hamsey Church, near Lewes, there is a tomb with a similar canopy and an identical frontal, but there is no sculpture corresponding to that at Kingston. This is known as the de Say, or founder's tomb, but the Lewknors had property here, and both tombs may have been erected as Easter sepulchres. In an article in the "Sussex Archaeological Collections," it is conjectured as the work of a Lewknor who was groom-porter to Edward VI. and died in the Tower. The upper part does not appear to be certainly of the same date as the lower, and it may have been restored and re-erected for its original purpose by this Lewknor.

In Shoreham Church, again, there is a sepulchre of similar form. The frontal of the tomb has an arrangement identical with that at Kingston, of three quatrefoils enclosing shields, and four upright panels for figures, but with end piers in addition, probably intended to carry the canopy; under the existing canopy there is a demi-angel with shield. In this monument, like that at Hamsey, there is a doubt about the upper portion, that is the part proper to the Easter sepulchre, which may have been taken down and afterwards reinstated to something near to its original design.

I have remarked on the absence of heraldic

bearings in these tombs. Quite different in that respect is the magnificent tomb, in the neighbouring church at Broadwater, of Thomas West, 8th Lord la Warre, who was born in 1458, and died at Offington in 1526. He directed by his will that he should be buried in his tomb of freestone, within the church at Broadwater. The tomb, therefore, must have been erected during his lifetime (not soon after, as described in some accounts), so that it may have been erected by him as an Easter sepulchre, as it stands in the usual position of the sepulchre. Also, by his will, he gave his mantle of blue velvet of the garter, and his crimson gown belonging thereto, to make two altar cloths. His wife Eleanor died in 1536, leaving instructions for a priest to sing for her for the space of one year.

The tomb is of the altar form, with a canopy of three cusped arches carried by pendants. The whole work is profusely enriched with heraldic bearings and badges, including the leopard's head jessant de lis of Cantilupe, and the crampet of the scabbard of the sword of John, King of France, granted as a badge of honour to Sir Roger la Warre, for having received at Poitiers, in 1356, the sword of the King of France. The front of the tomb has alternately square panels with shields and narrow panels as in the three I have already quoted, but the shields very small, on a draped field, have the armorial bearings carved, and the panels have mutilated vestiges of sculptured figures, nimbed. In the centre, a standing figure, has radiating rays all round; from this and the outline I judged it to have been the Blessed Virgin. Under the canopy there is a carved shield enclosed in the garter, but without the supporting angel. This monument is interesting as an example of the introduction in the carved brattishing of the cornice, and in the pendants of Renaissance ornament, probably the work of a French artist. The general design is English Gothic.

The succeeding Lord la Warre, Thomas, who died in 1532, was buried in a counterpart of the Broadwater Monument at Boxgrove. He is said to have signed the letter to Pope Clement VII. in favour of the divorce, but afterwards was doubted and in danger of the King's enmity, as appears from the letter addressed to the King by Cromwell and others (Ellis Original Letters, vol. ii., p. 123), "We have employed all our most diligence, industrie, and activite." "But as yet we can find no sufficient ground to committe him to prison in your Grace's Tower." Nothing is known of the offence he was suspected of. He pleaded earnestly though in vain, to Cromwell for the Benedictines of Boxgrove, and he may have been suspected justly of an endeavour to return to rectitude and the old ways, such a return as the monument I am about to describe may evince.

It is the reputed tomb of the next la Warre, who died in 1554, the year following the accession of Mary, and is in the south transept of Broadwater Church, opposite the end of the south aisle. Of complete Renaissance design, it is altar-like in form; the frontal has a large rectangular panel in the centre, now quite plain, and upright panels at each side which have evidences of mutilated figures; above the altar or tomb there is a sort of reredos, within the centre the mutilated evidence of a seated figure on a throne with a nimbus of radiating points, whilst in the side panels are perfect figures of Our Lady and Child and St. George. Above is a projecting coved canopy, with demi-angels and shields, the whole at present crowned by a molded and carved cornice. As I have said before, the whole of the detail is of Renaissance character, a further development of the change evidenced by the portions of the first monument described; but the effect is good, and with its overhanging coved canopy, so general in the late Gothic chantries—as, for instance, Abbot Bird's in Bath Abbey, and in some of the French woodwork lately acquired by the South Kensington Museum—I cannot but feel that it must be a chantry altar rather than a tomb.

In Cartright's "History of the Rape of Bramber," speaking of Broadwater (p. 38), he says: "At the east end of the south aisle was a monument, of the same style as last, to

Thos. la Warre, who died in 1554 it is now (1830) taken down to be repaired when taken down it was discovered that one of the niches contained a figure of the Virgin and Child, and another of St. George, carved in stone, in good preservation; they were covered by a pew." But the version now told is that they were preserved by having been built in with the face inwards. It is known that several chantries were destroyed in the first quarter of this century, and I suggest that this may have been the altar of one of these, and, if so, of great interest to us as a work of the revival under Mary.

A suggestion of a development in arrangement was given to us this year in the Church of SS. Peter and Paul, Purtenhew, Co. Bedford, where, on the central arch of the chancel screen we should ordinarily expect to find in a scripture some allusion to the rood, we read "Transfiguratio Domini Nostri Jhesu Christi."

May not in this case the great Crucifix have been in stained glass, in a painting or in sculpture over the high altar, and another mystery selected for the entrance to the chancel? The great reredoses become, as I have before suggested, the image-bearers; and when, as at Winchester, the rood was so important a part of the reredos, and of such large size, the repetition of the same subject directly in front of it might seem to be out of place.

Another instance of devotional and architectural growth may be noticed in the old churches of Eastbourne and its vicinity. At Eastbourne, in the thirteenth century, eastern responds of the nave arcades, shallow recesses, or niches have been sunk, apparently for the reception of paintings or enamels of saints, probably of the dedication of the adjoining side chapels.

The same idea has been similarly carried out in the neighbouring churches of Pevensey and Westham. These recesses are evidently of much later date than the piers into which they are sunk, and portions of the stonework have clearly been inserted; but in the late perpendicular Church of St. Clement, Hastings, the idea is more fully carried out by canopied niches which form part of the original design and construction of the two easternmost pillars of the arcades, which corresponded ritually with the responds of Eastbourne.

Those members who joined in the visit to Dunstable Priory will remember the portions left in the arch on the north side of the ancient nave of a very ornate screen of Renaissance design; and we constantly see evidences of roods having been erected but to be at once destroyed.

Our pilgrimage this year was mainly prompted by the fact that the church of St. Neots was largely filled with stained glass by Mr. John Powell, whose work we esteem, and whom we keep so affectionately in our memory. We had also the pleasure of seeing in the same church the excellent work of another member of the Guild—Mr. Walters—the Rowley monument. More than this remembrance would be out of place in these notes.

An architect's notes must, I fear, be but dull reading. He may have a measuring rod, but it is not a rod such as was given to St. John, it is only a two-foot rule, and however pleasing may be the searching in old shrines for evidences of past glories, the enumeration of them is not an inspiring work.

St. John saw a glorified basilica in its full glory. We have to study denuded sanctuaries. Happily, it requires but ordinary vision to see how our old churches were built up with the old faith and the history of our people, and to feel how intimately they are bound up with our sympathies.

YORK HOUSE, Twickenham, is undergoing an extensive process of renovation and decoration to prepare it for the Duc d'Orléans, who is shortly to take up his residence there. There has been as little interference as possible with the fine old Elizabethan work which is so characteristic a feature of the interior; but in some of the principal rooms the ceilings have been renewed in the Louis XIV. style, and the electric light has been provided throughout the building.

A TIMELY PROTEST.

THE ABUSE OF STREET ADVERTISING.

WE have received the following letter from Mr. Richardson Evans, Secretary of the National Society for Checking the Abuses of Public Advertising:—

"At a meeting of the Council of this Society the annexed form of memorial was adopted for presentation to the London County Council and the several Metropolitan Vestries. It is proposed that it should be signed by Mr. Waterhouse, as President of this Society, and by London architects who are in sympathy with the views expressed. It is thought that by limiting the signatories to a class peculiarly qualified to speak both on the business and the æsthetic aspect of the question, a definitely influential expression of opinion would be secured. May I therefore request that you will in your courtesy publish the draft of the memorial, and permit me to ask all architects to send me the necessary authorisation to add their names."

"May I add that the proposal to erect an electric sign in Edinburgh recently was so strongly condemned by local sentiment that the firm which proposed to resort to the expedient abandoned the design in avowed deference to public opinion."

"It will, of course, be understood that, although illuminated signs furnish the immediate occasion for the memorial, the system of

regulation contemplated would apply to all the recent developments which destroy the architectural effect of our streets.—I am, Sir, your obedient servant,

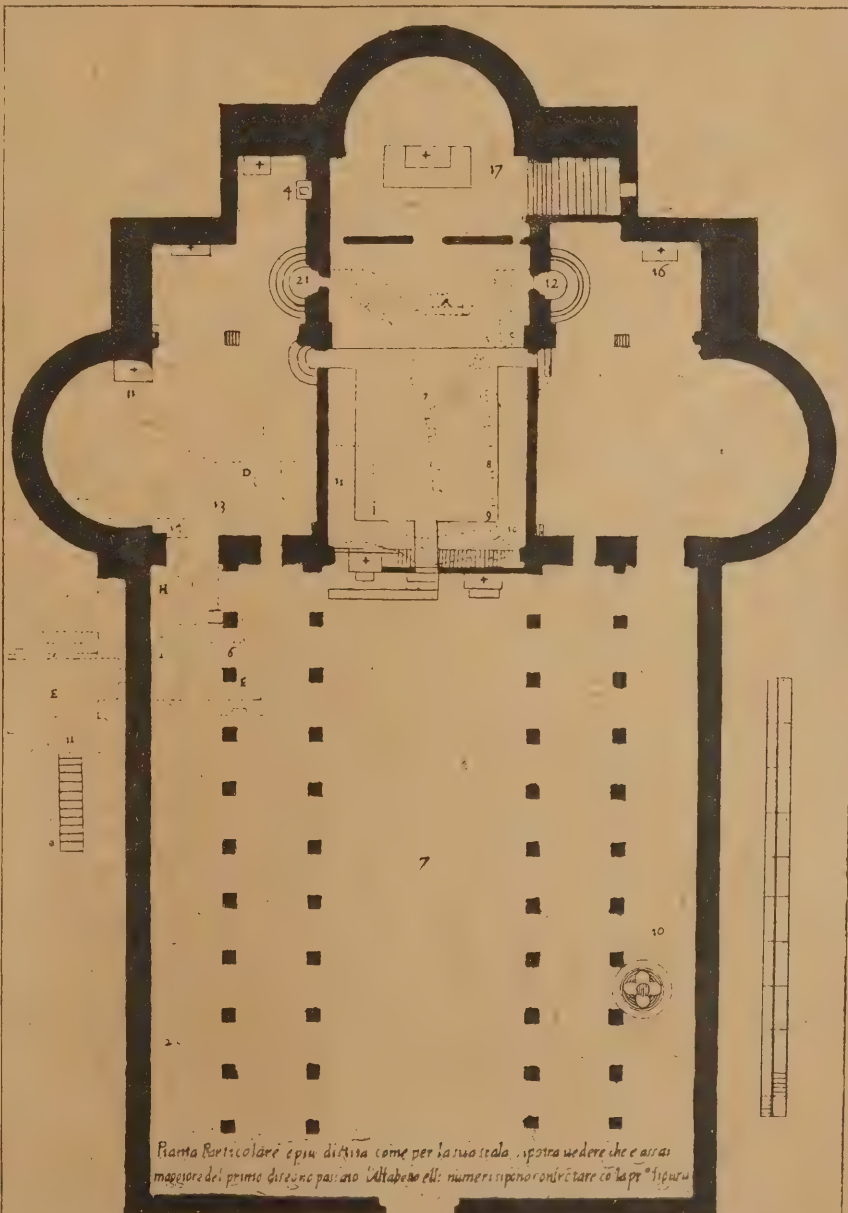
"RICHARDSON EVANS.

"January 14th, 1898."

[Copy of Memorial.]

"We desire respectfully to invite the attention of your honourable body to the practice, recently introduced and rapidly extending, of advertising in the public thoroughfares by means of large illuminated letters or other emblems. The architectural value of one of the most beautiful sites in Europe—Trafalgar Square—is thus nightly destroyed. We are aware that you have not at present any legal faculty of control, and our purpose is to suggest to you the expediency of applying to Parliament for such power as may enable you to deal effectually with this and cognate abuses."

"Some time ago an attempt was successfully made to throw advertising notices by the aid of a flash light on Nelson's Column. The Vestry of Saint Martin-in-the-Fields appealed to the Government, and the result was that this particular form of the practice was abandoned. In this special case, public sentiment was affronted by the disrespect shown to the memory of a great Naval commander; but we believe that there is a feeling hardly less strong, and even more widely diffused, regarding the progressive degradation of the metropolis by the displays on private premises."



PLANS OF OLD CHURCHES: CHURCH OF THE NATIVITY, BETHLEHEM.

We submit that reasonable regard for individual liberty requires that those who wish to use public thoroughfares shall not be subjected to annoyance at the discretion of the owners of adjacent buildings. It must be for the duly constituted local authorities to decide to what extent the appeal to the eye shall be permitted. In the absence of regulation, the evil must indefinitely extend both in range and in offensiveness. For it is a maxim of puffing advertising that the more brutal the attack on the sight the stronger is the impression left. If the proprietor of one preparation gains an advantage in this way, his competitors will be forced in self defence to neutralise his gain, by setting up eyesores—if possible more aggressive—on their own account. Trade does not benefit in the long run, and the public suffer.

We desire to see enforced a principle which, while covering the case of illuminated signs, would necessarily apply to all advertising devices of a similar character.

The fundamental issue, we submit, is whether the people of the metropolis are to be molested in the use of public thoroughfares; whether the interests of the inhabitants of a great city, in maintaining the dignity and beauty of its aspect, are to be sacrificed to the rivalry of certain classes of tradesmen; whether Architecture and scenery are to be converted at the caprice of individuals into an insignificant background for the brawls of competing makers and vendors.

In an age when so much is done at the general cost to improve the public taste and provide Art training, it is, to say the least, inconsistent to permit wanton disfigurement of our finest sites. The legislation (for London) regarding sky-signs has checked one mischievous development, but the principle of regulation has still to be carried to rational lengths.

To prevent misapprehension let us add that we contemplate no interference with such methods of advertising as are either in themselves artistic or are consistent with dignity and propriety in the aspect of our City. The praiseworthy efforts recently made to improve the posters would be encouraged by imposing a limit on the coarser modes of seeking publicity. Even on mere grounds of safety to life and limb some of the illuminations must be pronounced most objectionable. The rapid alternation of flash and darkness is not only distressing and injurious to human eyesight, but must add greatly to the difficulties of drivers and pedestrians, especially at an open space with a network of crossings like Trafalgar Square. Nor can it be doubted that, in some localities, the vulgarising effect of these displays must tend to depreciate the value of property.

MR. C. J. INNOCENT, architect and surveyor, of Sheffield, has removed his address to 22, High Street.

THE Old Toll House, on the road between Slough and Eton, has fallen into the hands of "the housebreaker," and is about to be demolished.

DR. INGRAM, of Peterborough, states that during the last seventeen years between £30,000 and £70,000 has been spent on the restoration of Peterborough Cathedral, and that a further sum of £8000 is required to complete the work, £2000 of which is needed immediately.

ANOTHER place in Paris destined to suffer from the modern craze for alteration is the Nouvelle Librairie, at the corner of the Rue de Grammont, on the Boulevard des Italiens, an establishment which, despite its name, is of considerable antiquity now. The Nouvelle Librairie is to be transferred from its old site to No. 11, Boulevard des Italiens.

EXTENSIVE alterations at the Bath Railway Station have been completed, the principal improvement being the removal of a block of business premises on the up side, which has allowed the platform outside to be greatly widened and lengthened. A new entrance has also been made, with separate booking-office, and the old footbridge has been done away with in favour of a more convenient structure.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
January 19th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Colne School Board has received the report of Mr. Royle, of Manchester, the adjudicator on the competitive plans for the erection of a new Board School. The awards were:—1, £20, Mr. W. H. Atkinson; 2, £10, Mr. John Varley, both of Colne. The plans of Mr. H. Holgate, of Colne, ranked next, but there was no third prize. The Board resolved to appoint Mr. Holgate architect for the schools.

MR. M. H. BAILLIE SCOTT, architect, who has recently been engaged in designing, decoration and furniture for T.R.H. the Grand Duke and Grand Duchess of Hesse, in the Palace at Darmstadt, is now commissioned by H.R.H. the Crown Princess of Roumania to design the decoration and furniture for a country house in Roumania. The house in question is constructed entirely in the trees, some considerable distance from the ground, and the irregular shape of the rooms gives many opportunities for quaintness of treatment.

It is a pity that the demolition of the Paris fortification walls cannot be delayed until after the 1900 Exhibition. Architects would then be alive to the need of providing stabling for motor cars. There is no place for such machines in the ordinary Paris house. Cyclists who live on fourth and fifth floors have to carry up their steel horses. The Paris architect is a product of schools. He is not very practical, and he generally works for capitalists who go in for cheeseparing and other savings. As a consequence, the domestic Architecture of Paris, however new, is hardly ever up to date. They are far more advanced in the new districts of the German cities. Paris water was not laid on in flats before the war. It was carried up to kitchens by Auvergnats, who sold it at the rate of a penny a can. One may now pay 6000f. or 7000f. rent, and not have a bath-room; but one will have a gilded drawing-room with a painted ceiling. Doors drag, and do not close well. Sometimes they seem obstinately bent on not opening. There is no ventilation, unless one throws open casement windows, and chimneys are so bad that if a neighbour above or below one's flat has a slow combustion stove one is liable to be asphyxiated by the fumes.

As originally intended, the British Fire Prevention Committee commences active work with the new year, all preliminaries having now been completed. The number of members with which the Committee starts nearly

reaches 300, and comprises the leaders of the different professions interested, together with a particularly large general representation of architects, surveyors, and civil engineers. The general organisation has been in the hands of the Chairman of the executive, Mr. Edwin O. Sachs, with whom the idea of the Committee originated, and among the 300 original members who are supporting the scheme are, to mention architects, Professor Aitchison, A.R.A., Pres. R.I.B.A., Sir Arthur Blomfield, A.R.A., Mr. Blashill (the superintending architect), Mr. Arthur Cates, the Crown surveyor, Mr. Darbyshire (Manchester), Mr. Douglas (Glasgow), Messrs. Mountford, Aston Webb, &c.; whilst of surveyors practically the whole of the London District Surveyors joined, with Mr. H. H. Collins, the President of the District Surveyors' Association, and the city surveyors or engineers of the large provincial centres like Glasgow, Dublin, Manchester, Birmingham, Newcastle, Leicester, Wolverhampton, &c., &c.; the engineers to County Councils, as for instance, Sir Alexander Binnie, of the L.C.C., &c. Of other professions the various branches of engineering are represented, for instance, by Sir Douglas Fox, and Mr. Preece, F.R.S. (Vice-Presidents of the Inst.C.E.), Sir William Bailey (Manchester Ship Canal), and Mr. Alexander Siemens; the Universities by Professors Barr (Glasgow), and Ewing, F.R.S. (Cambridge); the Science and Art Department by Major-General Festing, F.R.S., and Sir Norman Lockyer, F.R.S.; the House of Lords by the Earls of Stradbroke and De La Warr; the House of Commons by Major-General Russell and Colonel Tomlinson, and our civic authorities by Alderman Treloar. The theatre has Sir Henry Irving and Mr. Tree on the committee, as well as among others, Messrs. Terry, Hollingshead, Penley, &c., and the lighter forms of public entertainments are represented by Sir Arthur Sullivan, Messrs. Kiralfy, Moul, Morland, &c.

GREAT care has been taken as to the representation of the different interests, and, though architects and engineers are naturally in the majority, none of the sections affected have been neglected. As to the general policy of the Committee regarding fire prevention, this will be decided at the meetings which will be shortly held. The question of independent tests for "fireproof" materials, &c., on the lines adopted in New York and on the Continent, will, however, have immediate consideration, and Mr. Sachs is collecting particulars from the States and the Continent. Similarly, questions of general construction, the Building Act, &c., will be immediately dealt with. The issue of publications on the subject has already been commenced, and a library has been formed. Among the papers already in preparation are contributions on the Cripplegate Fire, on Construction, Safety of Electrical Installations, Theatre Safety, Regulations, &c., and a number of abstracts from Continental and American literature will also be issued. Among the contributors of impending papers are Messrs. Bridgman, Max Clarke, Darbyshire, Farrow, Goad, Sachs, Wordingham, &c. The offices are at No. 1, Waterloo Place, and all enquiries should be addressed to the assistant secretary.

TWENTY-TWO competitive plans for the proposed new fire station at Bootle have been sent in, and these were exhibited in the Town Hall. The author of the selected plans will receive the appointment of architect of the buildings, and a second prize of 25 guineas is also offered. The scheme, excluding the cost of the site, which is situated in Irlam Road, is not to exceed £15,000, and in the event of the Local Government Board refusing to sanction the borrowing of the money the successful competitor will receive 50 guineas as remuneration for his work.

THE Coates Memorial Church, described as "the most magnificent Nonconformist church in Europe," to which we referred in these columns last week—and which, by the way, is at Paisley and not at Blackburn—was designed by Mr. Hippolyte G. Blanc, A.R.S.A., of Edinburgh. As we mentioned last week, in all the

fittings and accessories the utmost refinement and finish is displayed; and we now learn that the choir stalls, organ transept screens, and gas-fittings were all supplied by Messrs. Jones and Willis, whose name has become so largely and so honourably associated with church furnishing. The work was executed from Mr. Blanc's own designs, and, without a doubt, is very beautiful.

At a meeting of the Truro Cathedral Building Committee it was reported that the foundations for the nave were completed. The treasurer stated that the available funds were about £24,000. It was decided to continue the work and to appoint Mr. F. L. Pearson to carry out his late father's designs for the completion of the nave.

An appeal has been issued by the Archdeacons of Gloucester and Bristol, and the vicar of the parish, in behalf of the restoration fund of Tewkesbury Abbey. It states:—"It is not too much to say that Tewkesbury Abbey is the noblest parish church in England. Larger than many cathedrals, second to none for its historic associations, enriched with architectural features of matchless interest, with its massive Norman nave and tower, and graceful decorated choir and ambulatory, this famous abbey is one of the few survivals of the great destruction which followed the dissolution of the monasteries in the sixteenth century. The inhabitants of Tewkesbury—then, as now, a small country town of 5000 people—saved their church, which, with its monastic buildings, was actually scheduled for destruction, by a large money payment to Henry VIII. For three centuries great efforts have repeatedly been made by them to preserve it from decay. Seventeen years ago the restoration of the interior was completed at a cost of more than £11,000, the work having been carried out under the supervision of the late Sir Gilbert Scott and his son, Mr. J. Oldrid Scott, the present architect of the building. Feeling the immense importance of preserving for future generations their noble church, the Abbey Restoration Committee have resolved once more to appeal to the generosity of churchmen at large to aid them in completing the restoration of the whole building, and providing effectually for its future substantial maintenance and care. For this a sum of £10,000 is needed, to be thus employed:—(1) £7000, of which from £2000 to £3000 will have to be immediately expended in repairing, and in many places renewing, the roofs of nave and transepts, that of the north transept, immediately over the great organ, being now in a very deplorable condition, and in arresting the decay rapidly going on in the stonework of the walls; the remainder to be invested so as to provide a permanent fabric fund, by means of which the whole building may be constantly attended to. (2) £3000 to be invested in order to efficiently maintain the spiritual work and services of the church."

When the Houses of Parliament re-assemble in February the most noticeable alteration which has been carried out during the recess will be found to be the extension of the electric lighting system, which, for some time past, has been gradually replacing the existing illuminant. It is interesting to recall the fact that as far back as the year 1839—five years after the destruction of the House of Commons by fire—the question of lighting came prominently forward, and various experiments were made with the Bude system, which was adopted a year later. The cry, however, was still for more light, and hence in the early fifties we find further experiments being carried on with Dr. Reid's system, the principal recommendation of which was that it rendered unnecessary the massive candelabra which were so familiar a feature in old prints of the period. After a time the popularity of gas brought about another sweeping change in the lighting of the senatorial chamber, and this, in its turn, is now giving way to the claims of electricity.

In a paper read before the Eastbourne Natural History Society, on the subject of

"Sussex Churches," Mr. H. Michell Whitley, F.G.S., said that the churches of the county were full of interest to the careful student of Architecture. It had been well said that the small village church was the special glory of England, and nowhere would they find more perfect examples than in this county. The earliest type of church was introduced during the Roman occupation of England. The earliest Saxon churches built after the landing of Augustine were of wood. There were probably numbers of them in Sussex. When the English began to build in stone they naturally imitated their previous constructions in wood, in carrying out the idea of upright wooden framing, and one of the most characteristic features of this period was the use of what was called "long and short work" for quoins. Examples of this were found in Arlington Church and the tower of Jevington. Saxon sculpture was rare, but there were two most interesting examples in Chichester Cathedral. Speaking of Norman work, the lecturer said the apse and tower of Newhaven were the best examples in the district, and Pevensey was spoken of as a good example of an Early English Church. Although Sussex was not rich in large churches, few counties possessed as many Saxon and Norman ones, and he had been specially struck with this in visiting the churches in the Eastbourne district. With the exception of Hailsham, Pevensey, and Alfriston, he had found Saxon or Norman features in all the churches of the district, and even those churches which had been rebuilt probably stood on the site of the older buildings. In Eastbourne they had an example of a large church which ranked with Rye, Winchelsea, New Shoreham, Etchingham, Horsham, Alfriston, and Poyning in the first class of ecclesiastical buildings. Reverting to Eastbourne Parish Church, Mr. Whitley spoke of it as a fine example of a large church which had remained practically unaltered from the date of its erection. One peculiarity of Sussex churches was the occasional occurrence of round towers. There were three, Piddinghoe, Southease, and St. Michael's, Lewes, all in the valley of the Ouse.

Attention is being called to certain regulations which the authorities have lately been enforcing in Birmingham, with regard to the lighting of basements by the insertion of glass slabs in the pavement, which regulations, it is complained, are a serious curtailment of the privileges which property owners have hitherto enjoyed. Prior to the retirement of Mr. W. Till from the office of city surveyor the rule was, it is said, to allow pavement-lights a foot wide along two-thirds of the frontage in cases where they were desired, the Corporation exacting no payment and making no special conditions. The result has been that a very large number of business premises have been so planned as to admit of the use of the basements for offices, showrooms, and so forth, the value of the property being thereby considerably enhanced, and the rates being proportionately enriched. Some time ago it was intimated to persons who were about to erect properties on these lines that the pavement-lights would only be sanctioned subject to payment of 5s. per annum for each light of 6ft. by 2ft., the arrangement to be terminable at three months' notice. Agreements to this effect were entered into in some cases; but other persons concerned have taken the view that not only is the exaction of a rental for the use of the pavement-light illegal, but that the reservation as to the continuance of the light seriously vitiates the property-owner's title, rendering the leasing of basements so precarious as to leave no alternative but to revert to the primitive cellar or comparatively dark storeroom. It is stated, however, that the regulations may subsequently be modified.

The directors of the New Gallery are to be congratulated upon having organised an excellent exhibition for the winter season. It comprises ancient and modern pictures of the British and Continental Schools—excluding living artists—and a special selection from the works of Dante Gabriel Rossetti, which includes examples of his work in oil, water-

colour, crayon, pencil, and pen and ink. The various loan exhibitions that have been held from time to time at the Royal Academy, the Grafton, and the New Gallery have doubtless tended to exhaust the supply, which naturally must be limited, and it is surprising to find so much freshness and variety pervading the present collection. Possibly the North Room will be the most popular of any. Here are sixty-four pictures, mostly by deceased painters of the British School, and many of them excellent specimens of the masters.

An important discussion, re the legality of a sanitary order, took place last week before Mr. D'Eyncourt at North London Police Court. The summons was taken out against Mr. Harold Morris (one of the City Commissioners of Sewers) in respect of the drainage of a house owned by him at Wyatt Road, Highbury. The case was before Mr. Bros at the court in November last, when the order was made that all sanitary defects should be remedied, but without specifying the particular work.—Mr. Bramall was proceeding to show wherein the magistrate's order had not been complied with, when Mr. Bodkin took objection to the summons on the ground that the Vestry had failed to comply with sub-section 5 of section 5 of the Public Health Act, which said that if the person upon whom the order is made so requires, the public authority shall specify exactly the work required to be done. There was no doubt as to the defective drainage, and the only question was as to whether there should be the smoke or the water test.—Mr. D'Eyncourt said the best way would have been for the defendant to have mandamus Mr. Bros to further hear the case. He (the speaker) held that the order on the face of it was a perfectly good one, but he would grant an adjournment so that each side might interview Mr. Bros on the matter.—The adjournment was accepted.

LONDON is losing its old landmarks at an alarming rate. In the neighbourhood of Holborn the course of destruction has been particularly noticeable during the year gone past. The demolition now in progress, of a number of ancient houses on the north side of that thoroughfare, will cover with oblivion many a spot of historic interest. The clearance begins at Furnival's Inn. Thence the labours of the "housebreaker" extend to the famous "Old Bell," which has already been razed to the ground. Between these two points two other licensed houses, pleasant with the flavour of bygone days, and more than one building with an interesting history, are doomed. Ridler's Hotel, which is to be rebuilt and enlarged, is a relic of the early days of the Queen's reign, and the removal of the present structure means the destruction of the "Horse and Groom," at the corner of Leather Lane. It is one of the quaintest hostels in London.

MR. THOMAS F. RIDER, president of the National Association of Master Builders of Great Britain, has sent the following communication to the Hereford Association:—"The present condition of the relations between capital and labour make these associations necessary in every town of importance. At present there is comparative peace, and the masters should close up their ranks and prepare for the inevitable contest. The engineers set a splendid example, and until the employers in the building trade make it equally clear that they intend to be masters over their own business, and, whilst recognising trade unions in their legitimate sphere, will submit to no dictation on the part of those associations in carrying on trade, there will be nothing but this irritating condition of affairs, ruinous to employers and employed alike."

An interesting discovery has just been made in the town of Reigate in the form of a portion of a roadway believed to be of Roman origin. Some workmen, whilst engaged in excavating for a sewer in Nutley Lane, discovered a completely-formed roadway about 5ft. below the surface of the highway. The path is about 14ft. wide, and is composed of flints, the edges of which have been trimmed to fit, and is

altogether of a very even character. By some local archaeologists the path is considered to be a continuation of the noted Pilgrims' Way to Canterbury Cathedral, which passes through the town of Reigate, and which can be seen on the side of the road leading to Reigate Hill; while others, seeing that the path is composed of flints, contend that it formed part of the old Roman road from Winchester to London. The road passed over the hill, and the district was known as Ridge Gate, altered in later years to Reigate.

The Corporation of London has deposited a Bill under which power is sought to borrow £80,000, which it is proposed to expend upon the enlargement and improvement of their Foreign Cattle Market at Deptford. For the purpose of extending this market it is proposed to acquire a large area of houses and lands now forming part of Grove Street, Barnes Terrace, Prince Street, and Watergate Street, and, in connection with this extension, it is proposed to construct four sections of railways for the purpose of forming a communication from the market to the Deptford Wharf branch of the London, Brighton, and South Coast Railway. A short single line of tramway is also proposed connecting with these railways, and the right is proposed to be conferred on the Admiralty of improving the access to the victualling yards at Deptford "by means of such junctions with the proposed railways as may be approved by the engineer from time to time appointed for that purpose by the Corporation."

ST. GEORGE'S CHURCH, Liverpool, has been finally closed. What will become of the structure? Probably many of the relics it contains will be preserved, and especially so in the case of the beautiful stained-glass window, the subject of which is "The Crucifixion." This would certainly adorn either one of the other of the two edifices which will be erected elsewhere to replace St. George's and St. John's, that is, provided, the fabric of the former is not rebuilt on another site. It is interesting to note that the design for the window was painted for the Corporation by the late Mr. William Hilton, R.A. The canvas, which measures 200in. wide and 229in. high, occupies a prominent position in the Liverpool Museum.

As every citizen of Leeds is probably aware, there is a covered service reservoir on Woodhouse Moor, extending across the south-east end. Some years ago, when the Corporation undertook to make the Moor more attractive, by the laying out of flower-beds and the planting of shrubs, it was seen that the roof of the reservoir might also be turned to good account by the gardeners. The brick arch forming the roof was accordingly covered with soil to a considerable depth, and an ornamental garden laid out. Many years have passed since the reservoir was formed, and probably not even the city authorities knew what was the real strength of the structure. The laying of many tons of earth upon the roof encouraged the belief that the arch was of a very substantial character. Recently a considerable portion of the arch collapsed, the superincumbent mass falling, of course, into the reservoir. It was then discovered that the arch was only half a brick thick.

FURTHER alterations are being made in more or less famous places studding the boulevards in Paris. Workmen have been engaged pulling down the mosaics, designed by Forain, and all the other gorgeous ornamentation from the front and side of the Café-Brasserie Riche. This ill-fated establishment, well-known to Londoners, is about to undergo another transformation scene. Formerly it was one of the old-fashioned cafés blancs, with the traditional blinds in the windows, the plush-covered seats, and the marble tables. A few years since it was turned into a branch of the Royal Beer-house of Munich, and the café became a brasserie. Now it is to be closed for another metamorphosis, and will not re-open until we are within very measurable distance of the next Universal Exhibition of Paris.

WITH the object of hastening the construction of the proposed new defensive breakwater at Portland, the authorities invited public tenders, and there was a keen competition among leading firms in the country. For some time past a number of men have been employed on the preliminary works connected with the breakwater by the Admiralty, and the Admiralty's New Works Department submitted a tender with others. The contract, however, was secured by Messrs. Hill and Co., Government contractors, of Westminster, and the whole machinery, plant, etc., now in the hands of the Admiralty, will be taken over by them, and the work proceeded with with all despatch. The time limit for the completion of the huge undertaking is four and a half years.

WRITING on the subject of wages in the building trade, a correspondent—"Nemo"—says:—"Whilst the supreme selfishness of the new unionists has been clearly demonstrated, there is one phase of their tactics to which attention has not been sufficiently, if at all, directed. I refer to its effect on the efforts being made to improve the dwellings of the classes, some above and some beneath them in social status, but all earning lower salaries or wages. Many more rich men would build suitable dwellings if they could see their way to a safe reasonable profit, say four per cent., and many landlords would lay out much more in repairs and improvements if they could be effected at a reasonable rate. But here the British workman comes in, and with his arbitrary rules as to wages and restriction of output becomes a hindrance. 'Duty towards one's neighbour' has with them become an obsolete doctrine. The following extract from a letter received in reply to one from me, complaining of a builder's account, but enclosing a cheque, illustrates what I say:—"My forty-three years, in business in — has been one continual stretch of hard work, and in it I have seen some changes. You say in your favour 'the bill seems very heavy for the work done.' I cannot deny it, but whose fault is it? It is not mine; it is the excessively high rate of wages paid to the men, who give in return much less work in a day than when their wages were cent. per cent. less! Joiners get 95 per cent. more than when I started business on my own account. Bricklayers get 90 per cent. more; labourers 120 per cent. more, and, as I said before, do less work for it, and whilst their wages have been going up the employer's reward has been going down."

To the long list of losses which the Royal Academy has lately suffered another has been added by the death of Mr. Stacy Marks. Born in 1829, the son of a solicitor who, curiously enough, quitted the law to carry on a family business as a coachbuilder in Langham Place, Stacy Marks began to study at the Royal Academy schools in 1851, after having been once rejected as a probationer. Fresh from his tutelage, Stacy Marks went to Paris, where he lived with his friend Calderon in one room "in perfect amity, poor but content." After five months of this idyllic existence, he went back to Newman Street and began his first picture—a half-length figure of Dogberry. The British Institution would have none of it in 1853, but the Royal Academy was kinder to the young artist. The canvas was hung next to Mr. Holman Hunt's "Strayed Sheep," and it sold immediately for £15.

CONSIDERABLE opposition has been manifested in Westminster against the proposal of a syndicate to continue the Embankment westward of the Victoria Tower of the Houses of Parliament, and demolish a considerable extent of property in the neighbourhood with the view of erecting a better class of houses, and a special meeting of the Vestry was called to consider the proposal. It was explained that the scheme entailed the removal of buildings of the rateable value of £40,119. After reading several letters of opposition to the scheme, the Vestry decided by twenty-eight votes to six to instruct counsel to oppose the bill on its behalf.

THE six distinguished painters who now, for the third time in succession, unite to bring forward a very agreeable exhibition of landscape at the Dudley Gallery, are once more Mr. R. W. Allan, Mr. J. Aumonier, Mr. James S. Hill, Mr. A. D. Peppercorn, Mr. Leslie Thomson, and Mr. E. A. Waterlow. The exhibition consists mainly of substantial and sufficiently-finished studies—by which is not meant merely sketches—with a good sprinkling, however, of pictures in which something a little beyond the faithful reflection of Nature is intended. What strikes the visitor agreeably, even in a first casual inspection of the collection, is that we are here in the presence of genuine Nature-lovers, whose first aim is not to proclaim allegiance to any particular school or branch of modern Art, but to depict unaffectedly, and with all artistic means at command, the simplest, but not the least touching, beauties of landscape.

MR. G. C. HAITE has completed the picture of the Jubilee procession on which he has been for some little time engaged. He has had as collaborators in the work two Italian artists, by whom some of the larger foreground figures were painted; but he alone was responsible for the delicate colour scheme, and for the luminous treatment of the background and accessories.

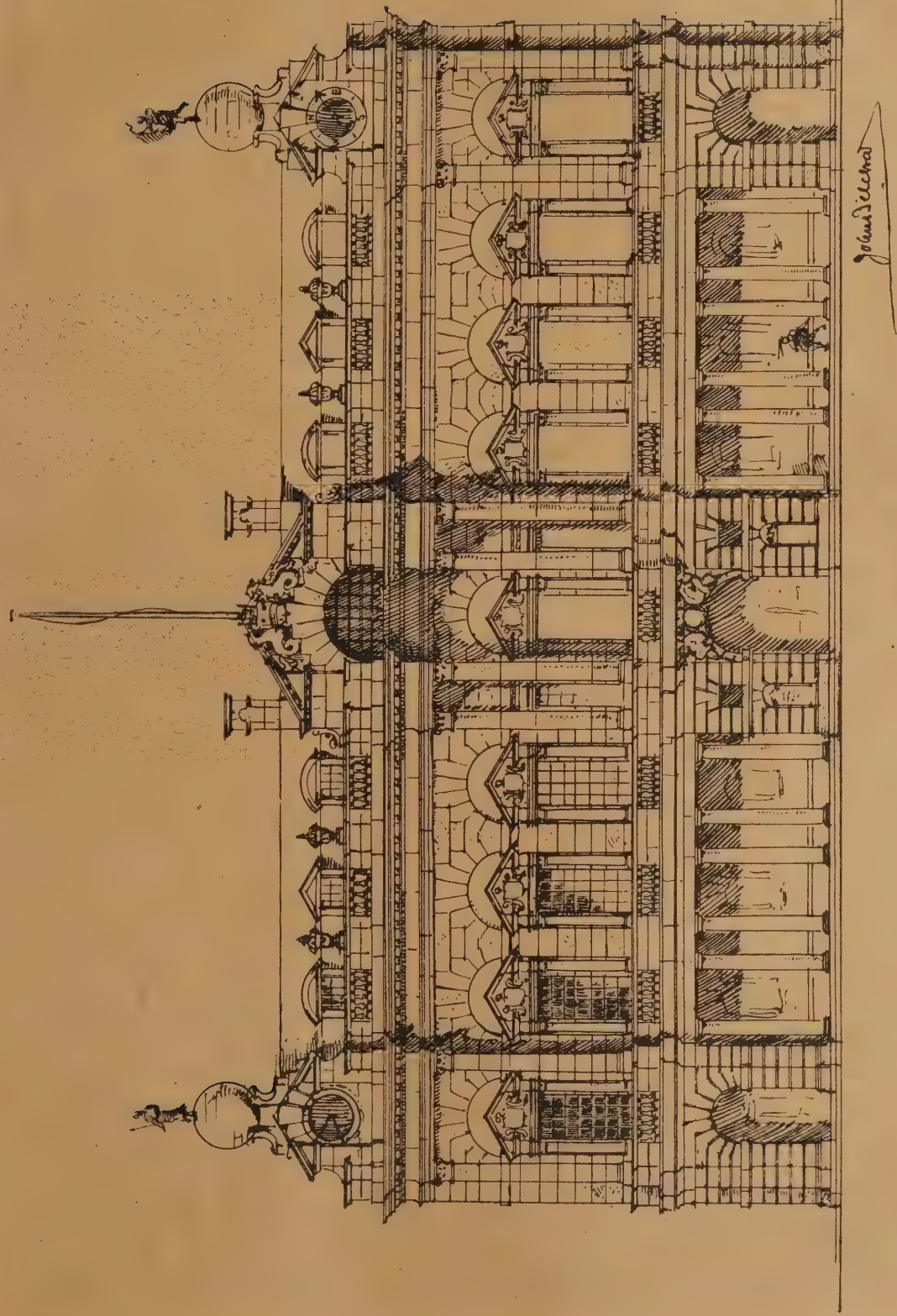
THE medals, prizes, and certificates gained by the students of the architectural, mechanical and electrical engineering, and mathematics classes of the Regent Street Polytechnic were distributed at the Polytechnic on the 10th inst., by Mr. Sidney Webb, chairman of the Technical Education Board of the London County Council. Mr. Robert Mitchell, the director of education, reported that the students of the architectural and building trades' classes had been most successful in the examinations held by the various public examining bodies. The number of students attending the evening engineering classes during the past year had exceeded that of any year since the Institute was opened, and the work done both in the class-rooms and at the examinations had been in every respect eminently satisfactory. Mr. Sidney Webb, in the course of his address, said that when the great new University for London came into existence, which he hoped would be the case either this year or next, it was very important that the Polytechnic should see that its work came within its scope, and that what they did entitled them to a University degree. The students of the classes should not be disheartened if they did not see how their attendance at the evening classes was to bring them extra wages or bigger salaries. He was rejoiced to see craftsmen of every sort crowding into an institution like that. Many of them were aware that he was a firm believer in trade unionism, but no trade union would be able to get better wages for any class unless the workmen themselves were proficient. They should come out of the rook and show their employers that they knew more than they were paid to know. The middle class had in the main ruled this country for the past fifty years, and ruled it on the whole to great advantage, but that was because the middle class had in the past been inspired with great ideas, and they would cease to rule unless they continued to be inspired with large ideas.

ONE beneficial result of the control of the London County Council over theatres and music halls has been the increased attention given by the owners of places of amusement to the protection of their audiences from fire. All the new suburban theatres are specially well equipped in this respect, and at the Brixton Theatre, the Shakespeare Theatre, Battersea, the Broadway Theatre, Deptford, the Grand Theatre, Fulham, Balham Town Hall, and at the Theatre Metropole, Camberwell, the latest Merryweather hydrants and fireproof curtains have been installed. The same firm are also fitting a new asbestos curtain at Drury Lane Theatre, where they have for many years attended to the fire-extinguishing arrangements.

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THE NEW GUILDHALL AT CAMBRIDGE. BY JOHN BEICHER, F.R.I.B.A., ARCHITECT.



THE NEW GUILDHALL AT CAMBRIDGE: FRONT ELEVATION. BY JOHN BELCHER, F.R.I.B.A., ARCHITECT.

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R.I.B.A.

THE PRIZE AWARDS.

THE awards—or rather the non-awards—of the Royal Institute of British Architects this year are a disappointment. Of the studentships and prizes offered by the Institute every year for the encouragement of the student of Architecture, no less than four have this year been withheld. The decisions of the Council were announced at the conclusion of a business meeting held—with Mr. E. A. Gruning, vice-president, in the chair—on Monday night. The awards are as follows:—

THE ROYAL INSTITUTE SILVER MEDAL and 25 guineas for essay.—Subject: A review of English Architecture of the nineteenth century.—One essay only was submitted, and the medal was not awarded.

THE ROYAL INSTITUTE SILVER MEDAL and 10 guineas for measured drawings.—Subject: Measured drawings of ancient buildings in the United Kingdom.—Awarded to Thomas Tyrwhitt; medal of merit to Cyril Wontner Smith. Six sets of strainers were submitted.

THE SOANE MEDALLION for design, and £100 for Continental travel and study of ancient buildings abroad.—Subject: Design for a concert hall.—Five sets were submitted, but the prize is not awarded.

THE PUGIN TRAVELLING STUDENTSHIP: Silver medal and £40 for travel in Great Britain and Ireland and study of mediæval buildings.—Four sets of strainers were submitted, and the studentship is awarded to C. de Gruchy; and a medal of merit to Benjamin Bower.

THE OWEN JONES TRAVELLING STUDENTSHIP: Certificate and £50 for the study of ornament and colour decoration.—Two sets of strainers; studentship not awarded.

THE TITE PRIZE: Certificate for Design according to the principles of Palladio, Vignola, Wren, or Chambers; and £30 for travel and study in Italy.—Nine designs were submitted, and the prize awarded to John Stevens Lee; a medal of merit and ten guineas is awarded to Thos. A. Pole.

THE GRISSELL GOLD MEDAL and £10 10s. for design and construction.—Subject: Design for a small country church. Twelve designs were submitted, and the award made to Harbottle Reed, a medal of merit being given to W. Stanley Bates.

THE ALDWICKLE STUDENTSHIP: Certificate and £50 for travel and study in Spain.—Awarded to James B. Fulton.

ASHPITEL EXAMINATION PRIZE: Not awarded.

THE ARTHUR CATES PRIZES, for testimonies of study prepared by students for the final examination. June, Percy Morris; November, Laurence Hobson.

The reports of the Pugin (1896 and 1897), Aldwinckle (1896 and 1897), Owen Jones, Soane and Godwin students, it was announced, were approved and confirmed by the Council.

Mr. Ernest George will read a criticism on the awards at the next meeting of the Institute to be held on Monday, the 24th inst., when the various prizes will be distributed. The presidential address to the students will be delivered at the same meeting.

The exhibition of prize drawings opened on Friday in the galleries at 9, Conduit Street. The drawings submitted by the travelling students are very fine. Mr. A. E. Henderson, the Owen Jones student, has been to Stamboul, and there found several exceedingly interesting designs. Mr. J. A. R. Inglis, the Soane medallist, gives evidence of his visits to Palermo and Verona, and Mr. A. T. Griffith, the Aldwinckle student, has been working on Spanish scenes, and in these displays his great talent to the best advantage. Other students who are exhibiting are Messrs. R. S. Ayling, the Godwin bursar, W. Haywood, the Pugin student, and C. C. Brewer. Five have entered for the Soane Medallion and a purse of £100, and these have submitted designs for a concert hall to seat 3000 persons, including a small chamber concert hall to accommodate 300. The regulations of the London Building Act had to be observed.

COMPOSITION IN REGARD TO
PUBLIC BUILDINGS.*

By F. T. BAGGALLAY.

THIS subject, which six months ago I rashly undertook to write upon, is a vast one; embracing really no less than the whole field of architectural design; and, although I shall confine myself to its æsthetic side, it will not be possible to do more than deal very superficially with a few points even of that. It is, too, as elusive and slippery as an eel; no sooner does one begin to feel a more or less firm grip upon some part of its complicated anatomy than doubts arise, and the chase has to be begun again. It perpetually leads to the quicksands and dry deserts of philosophic inquiry into the function of Art and foundations of beauty, where one meets the mirage of a logical reason for doing what one wants to do, and it leaves one at last floundering in the ocean of uncertainty that surrounds the firm ground of knowledge. The hydra heads of this provoking subject are the principles that should govern the composing of the various parts of a building into a pleasing and harmonious whole. And though it might be taking things more in order to try to seize its tail first, and discuss the building up of a moulding or a single curve,

THE INCIDENTS OF THE CHASE

may possibly be a little less wearisome if I attempt to grasp the heads. The composition of the completed building is really the true function of the architect. In a properly organised system the details and ornamentation would be left to the various trained craftsmen, who could, and would, be trusted to work in harmony with their chief and with each other. But ours is a disorganised system, under which no harmony can be attained unless the architect himself composes or, as we say, designs the details also, or has them efficiently copied from others which he can choose. The latter alternative has come to be universally condemned, and properly so. But the condemnation has been so noisy, and the attention it has attracted has been so great, that detail still continues to hold the absurdly prominent position it attained when all Architecture was judged by the correctness with which

THE DETAILS WERE COPIED.

In connection with any other matter, the admission that anything is a detail is sufficient to relegate it to at least the second place in our consideration; but in connection with Architecture, it is often the only thing that is even noticed by the critic. Our only historian—because, from the Renaissance up to his time architects generally borrowed a number of ornamental features and most of their detail from ancient buildings—proceeds to heap contempt upon all modern Architecture as mere copyism, and goes so far as to tell us that true Architecture “expired” at the Renaissance. Most critics, in fact, have for centuries awarded praise or blame to architectural works on the merits or demerits of their ornamental details alone, at one time praising “correctness,” and more recently originality. Few and scarce have been the writers who gave a thought to such things as light and shade, grouping, proportion, scale, character, and expression—except so far as the

ORNAMENTAL FEATURES

were affected—who were able to lay aside the microscope and the dissecting knife, and study the lines and pose of the model. The fact is, those critics of Architecture who have succeeded in being heard have too often been men of literary and general, instead of architectural culture, men to whom the ornamental part was the more obvious, and more easily understood. On the ornamental details their attention had been naturally fixed, and to such an extent that, for a time, they persuaded even architects that Architecture was a matter of columns and cornices, or of window tracery and mouldings, or of something vague to be invented to take

the place of these things. Mr. Fergusson himself was in no sense an architect, though a picture gallery is said to have been erected from his design, and he looked at Architecture from the outside only, and, with all his careful comparison of photographs and book illustrations, never seems to have succeeded in seeing anything but a number of different systems of ornamentation which he could number and ticket and criticise for the astonishment of the public, and the confusion of students. It is said that originally his æsthetic sensibilities were not deficient; but if that is so he had certainly succeeded, before he wrote his history of modern Architecture, in choking them with philosophy and burying them under a mountain of statistics. Yet even Mr. Fergusson might have avoided, if he had not been blinded by a complication of preconceived opinion and far-fetched theories, the gigantic mistake upon which he founded his indictment of modern Architecture, the mistake of supposing that decorative features first began at the Renaissance to be imitated from older buildings. Had it been true, it would have been no proper foundation for a sweeping condemnation of modern Architecture. But it is not true; it is so far from true that in every age there has been far more imitation than original design in architectural ornaments; so much imitation, in fact, that, in most cases, “copying” would be the better word. The Egyptians, when they wanted columns and capitals and cornices for their temples, did not invent them, but copied in limestone and granite the bundles of reeds and the accidental forms of their earlier mud structures, and continued to copy them with but slight modifications to the end. The Doric temples were absurdly exact copies in marble of the more ancient wooden ones, even to the nail heads. The details of the Ionic order were borrowed from Asia Minor, and some say the Corinthian also. The Hellenic Greeks, beyond adding a degree of finish due to their greater mechanical skill, never got very far from their originals.

THE ROMANS BORROWED GREEK DETAILS

by the bunch, and in most cases without any alteration (except that they struck their curves instead of drawing them by hand), and applied them in their own way to their own uses, precisely as the Renaissance architects afterwards applied Roman details; and the Romanesque was but Roman work badly copied. The variations that were developed in the details of the pointed styles of Western Europe, in the three or four centuries through which they lasted, were, it is true, considerable; but even they were developed very gradually, and under exceptional circumstances, that are not likely to prevail more than once in a thousand years or more. It is very doubtful, too, if the successive changes were made consciously; it is just as likely that the men who first made them thought they were working the same forms their fathers wrought before them. Imitation—or, if you will, “copying”—is inevitable as regards architectural forms; and, moreover, it is the only road to improvement. It is not in the power of the greatest genius that ever lived to invent any great number of entirely original ones that will at the same time be acceptable. Those who have been least unsuccessful in the attempt have only succeeded in being absurd, while of the rest the less said the better. New forms must grow gradually, and will inevitably do so if we do not persist in harking back, or in trying to make fresh starts; and if we are not too vain to imitate where we cannot improve, nor too lazy to improve if we can. We

NEED NOT COPY,

like the Chinaman who made a dozen cracked slates to a cracked sample; but we shall never get on at all if each man tries to invent a brand-new style of his own. On the other hand, neither shall we get on if we condemn a fresh variation, merely because it clashes with our preconceived notions. What we must ask is—is the change an improvement, or is its freshness its only justification?—freshness is always delightful—and if so, is the justification sufficient, or has something more important been lost in the shape of actual

* A paper read before the Architectural Association on Friday night.

beauty or significance? In this matter a distinction may be drawn between details that are purely ornamental additions to the general composition, with which fancy can safely sport freely, and those which have a functional character, either constructive or as emphasising any line or form in the composition; any change in these seems to demand some greater justification than its novelty. After all, the time and energy expended by architects in trying to freshen up the elements which go to make up their compositions seems as if it might be rather thrown away when we think that painters and sculptors have to use the same elements that their predecessors have been welding into works of Art since the beginning of time. Architecture, of course, is an Art on a very

DIFFERENT BASIS TO PAINTING AND SCULPTURE;

but there seems no adequate reason why the architect should not regard his building very much as the sculptor regards his group—as something to be moulded into a thing of beauty as a whole, though the elements may be as hackneyed, as a quotation from Shakespeare. Should anyone ask, ironically or otherwise, how this heterodox theory is to be carried into practice, it must be confessed that the best of answers is very unlikely to be satisfactory. The only consolation is that if a painter or sculptor were asked a similar question with reference to his art, the reply would be no better. If these things could be done by rule, there would be no art in doing them, and they would cease to interest anyone. The world has long ago agreed that most of the skill to do them well must be born in a man, and that very little of it can be put into him by his own efforts, and still less by the precepts of others; and the world is no doubt right. The most that can be done is to call attention to certain matters that seem to have led to success in particular instances, and, therefore, presumably, may do so again. But first it may be well to note what is the character of the elements at the architect's disposal, as compared with other artists. While the painter has the whole scale of colours to draw upon, and every line in Nature or in art; the sculptor, all natural forms; and the musician, all conceivable sounds;

THE ARCHITECT'S CHOICE

in each direction is limited. Sound he cannot use at all; his colours must be confined to such as time, exposure, and use will not seriously change, and, externally at least, must be mainly those of his building materials; and his forms must be such simple ones as economic conditions impose upon him as a builder. He has, however, the immense compensating advantage that he can use not only both form and colour as elements in his composition, but also the finished productions of his colleagues, the painter and the sculptor. It is also noteworthy that, although he cannot create interest by making his building tell a story or represent a familiar scene, he has no need to do so, since his creations have a definite purpose, and therefore an innate interest of their own which he can bring out and possibly emphasise. One of the first things to remember, and, considering the many temptations to forget it, perhaps the most important, however elementary, is that

A BUILDING IS NOT A FLAT THING,

but an object of three dimensions, having depth as well as breadth and height; and that the best results cannot be obtained unless this is made obvious to the spectator. A comparison of the Church of St. Saluté at Venice with the Grimani Palace, or of Vicconti's buildings of the Louvre with the Palace of Versailles, or of the Horse Guards' building with Inigo Jones's Banqueting House, may indicate my meaning. All these buildings are supposed to be excellent works of Art, although they come under Mr. Fergusson's description of "modern" Architecture; but while the church in Venice, the Louvre in Paris, and the Horse Guards in London look like complete buildings, the others, as far as appearances go, might be only ornamental walls. Two, the Saluté and the Horse Guards, seem to me unsurpassed as

examples of architectural modelling; and it is worth noticing that Kent's success in this was obtained in spite of the always discouraging difficulty of having not a single large chamber, but a number of small rooms to deal with. Mr. Fergusson, of course, affects to despise the building, being apparently offended by its small scale. One cannot but remark also that

THE LOUVRE

owes nothing to its details, which are, in fact, distressingly dreadful; but like the other two, it shows its depth. It does so by means of the projecting arcade, and also, and more especially, by the roofs of the pavilions. We all know that the French generally show the roofs of their public buildings, where we should probably keep them low and hide them with parapets, and there can be little doubt that it is one of the main secrets of their comparative success with such works; at any rate, the details can often have nothing to do with the matter; in many cases they are of the weakest and most contemptible description. The exhibition of the depth or third dimension, by merely exposing the return wall, is useless; the two walls still appear to be merely walls, as may be seen by referring to the Banqueting House and Sir Gilbert Scott's Government Offices. I mean no disrespect to the architects of these buildings, for their present appearance is no fault of the great men who designed them, since they are both unfinished. What is wanted to suggest solidity is something showing over and beyond the walls; in the Saluté it is the dome, in the Louvre the pavilion roofs, and in the Horse Guards the charming little turret that Fergusson sneers at. Most

MEDIAEVAL CHURCHES AND PUBLIC BUILDINGS

—Continental ones, at any rate—depend mainly on their big roofs for the purpose, which they fulfilled in a simple, natural, and adequate manner; and most modern French buildings, and a few English ones, follow their lead—cathedrals; Hôtel de Ville, Oudenarde; Rathhaus, Breslau; Rathhaus, Bremen; French town halls; Nottingham Municipal Buildings. But in England, even in mediæval times, notwithstanding there were the roofs, we liked to have also some solid structure rising from the middle of the composition and advertising the solidity of the edifice by its substantial appearance. And we have continued to prefer the expedient, where we have adopted any at all, to an exhibition of the roof, possibly from an undeveloped feeling that all roofs look unsubstantial. That it is the grander method there can be no doubt, and St. Paul's Cathedral, St. Albans Abbey, and the Brussels Law Courts testify that it is equally efficient. The Horse Guards might also be quoted, since the roofs of the centre block are practically hidden by the parapets. In this instance, however, solidity is partly obtained by another expedient, more common because more easily applicable in many cases, namely, by pavilions rising a story higher than the rest, and so showing their depth, but it is the turret that pulls the whole together and makes one mass of it. In these days

LARGE PUBLIC BUILDINGS

generally take the form of ranges of apartments surrounding one or more courtyards, and, so far as the periphery of actual building is concerned, solidity is sometimes, though not often, given by the higher pavilions just referred to. But it is now rare to find in England any attempt made to bring the whole together into one by a great feature rising behind the external range. Abroad it has been done in the Palais de Justice at Brussels, the new Parliament House in Berlin, and in many other cases. It might easily be done in our own Government Offices by building upon the intersection of the internal blocks, and in a vast number of cases it might be done simply by placing the eternally recurring tower, that we put in the middle of our main front or stick on to a corner, within the courtyard, or at any rate well back from the outside walls. Of course, the tower, as a tower, would lose, at any rate, its aggressiveness would be suppressed; but that is just what is often wanted for the sake of the modelling and

unity of the composition. To illustrate this point, I have ventured to cut up an illustration of a very fine competition design published some years ago, to show the effect of taking the tower from the position in which it was placed, and in which there were, no doubt, excellent reasons for placing it, and putting behind the buildings. Wherever

THE TOWER OR OTHER DOMINATING FEATURE

of the composition is placed, its proportion as seen from different points of view, might well receive more careful consideration than they often seem to get. If a tower is used, the main idea seems to be merely to run it up to an enormous height, and give it, as nearly as possible, the proportions of a factory chimney. There is frequently the same tendency to excessive height in the drum of a dome, while the flat square domes or roofs used in France and Germany are generally too low. Both the mass and proportions of the main feature whatever it is, should be regulated by those of the group to which it belongs; a low straggling building wants a high and narrow tower, a more concentrated composition, something broader and lower in proportion. If the area or plan of the feature has to be small for the edifice, it must be carried up high, or it will appear mean; if the opposite is the case, it can only be subordinated to the whole by keeping it low; if it is made lofty it overwhelms the rest, which must then be treated as subordinate. Such compositions as the church at the Saluté, before referred to, and the dome over the tomb of Napoleon are examples of the last arrangement, which is obviously the grandest when it can be adopted. To return to the question of the position of such a feature as a tower, balance requires that it should be somewhere near the centre of the composition. It is inevitably, and meant to be

THE CHIEF OBJECT THAT ATTRACTS THE EYE

and, if it is anywhere near the outside, still worse if it is at a corner, the group must be ill-balanced from most points of view. I remember Mr. Armitage, in his Royal Academy lectures on painting, pointing out that the main object of interest should never be near the margin of a picture unless the object were to suggest motion, as in the case of a ship just coming into view, and then the balance of the composition must be sacrificed. In Architecture we can never want to suggest motion, and cannot have that excuse. It is doubtful if the position should be the exact centre. The best painters and sculptors, though generally careful to put the chief point of interest near the middle of the composition, and to preserve a general balance between the opposite sides, always avoid the formality of a strict symmetry. There is something however, to be said for the view that architects may properly do otherwise especially in public works, and that such buildings should be symmetrically designed at any rate with reference to one main axis, the principal feature being upon that axis, and not far from the centre of it. For one thing, the formality which other artists avoid is really necessary to give that air of dignity and distinction to a great building which its character demands. It indicates organisation and order and balanced construction. Reviewing

SOME GREATEST PRODUCTIONS OF OUR ART,

we find that it is easy to note and appreciate the simple majesty of the Parthenon, the spaciousness of the Pantheon, the soaring vastness of St. Sophia, the richness of St. Mark's, the airy splendours of the great Gothic cathedrals and the exquisite lines of St. Paul's; but we cannot find any general arrangement common to all of them, except their symmetry with reference to a main axis, and are forced to the conclusion that, though many varying systems may be productive of the grandest results in skilful hands, yet symmetry is necessary to all of them. On the other hand it is noticeable that very few buildings of the first order are symmetrical with reference to more than the one axis, and that there is a certain tameness when it goes beyond that carried to excess, symmetry may easily take all the life and vigour out of a composition.

(To be continued.)

EVOLUTION OF STYLE IN ARCHITECTURE.*

By LESLIE OWER, F.R.I.B.A.

(Continued from page 500.)

OUR ideas of comfort and convenience have reached a high level, and buildings must be designed to satisfy those ideas in the first place, whatever may be the result on architectural design or proportion. Sanitation, which may be said practically to have begun with the Queen's reign, has also a distinct influence on Architecture. Buildings have to be planned so that the sanitary arrangements shall be in the most favourable positions for light and ventilation, instead of, as formerly, pushed into any dark and unventilated corners. Routes must be arranged for soil, waste, hot and cold water pipes, so that they shall work perfectly and be easy of access, but at the same time not obtrude themselves unduly on notice, combinations not always easy to attain. In the elevations these arrangements of planning make themselves apparent, requiring skill to work them in with the general design, and sometimes they develop into important features, as in the case of lavatory towers attached to the wards of infirmaries and hospitals.

BANEFUL INFLUENCES.

One of the baneful influences on the progress of Architecture, and an outcome partly of our commercial activity and partly of our climate, is the filthy condition of the atmosphere of our large towns from the amount of coal smoke belched forth from huge chimneys, and less evidently, though possibly not less obnoxiously, from the ordinary household fire. It is not encouraging, to say the least of it, to see a fine piece of Architecture become, in a year or two, sometimes almost before it is completed, so soot begrimed that it loses much of its effect. Surely engineers and scientists are not yet prepared to admit that everything has been tried, and that the cure of this great evil is beyond them. From every point of view, whether of beauty, sanitation, cleanliness, or comfort, it is desirable to have the nuisance abated. But meanwhile it is having its effect on Architecture, and, though baneful in one direction, has induced development in another. The desire for materials which will not absorb dirt has developed the industries of terra-cotta and faience, and much artistic work has been produced, especially in the latter. Speaking of smoke naturally suggests the subject of chimneys. In our climate the chimney is an important feature in architectural design, and has had considerable influence in modifying style. In the countries where the styles of Architecture were earliest developed the character of the climate rendered any special arrangements for heating or cooking unnecessary, and consequently those styles were perfected without consideration for this, to us, very necessary feature. This is only too apparent in the incongruous effect we often see when chimneys are introduced into classical designs. The makeshifts to conceal them or keep them subordinate, the attempt to keep them short, which generally results in an ugly regiment of tin pipes stayed by wires, and surmounted by whirligigs, all go to show that in buildings where chimneys are necessary the classical style must undergo some important modification before it will adapt itself to this new condition. It was not till the thirteenth century that the chimney took, in our country, the form of a flue built into or against the wall, but by the sixteenth century we find this feature fully developed, and the beautiful design and picturesque grouping of the chimney-shafts form one of the most piquant features of the elegant Elizabethan style, and stamp it with an undoubted national character. In any truly British national style the two leading features of Elizabethan Architecture, viz., the gables and the chimneys, must of necessity remain prominent. Another of the baneful influences on modern

Architecture is archæology. While having every admiration for the splendid piles which our ancestors raised, and which are amongst the proudest possessions of our land, I deprecate that slavish copying of their works which has been the fashion during the past Gothic Revival. To some men, and those high in the architectural Profession, the perfection of their Art has appeared to be the literal reproduction of some cathedral or church of the middle ages. The only effect which the contemplation of the great works of the past master-masons has been able to produce on such minds is craven self-abnegation, breeding poverty of ideas, and reducing the copyist to the miserable level of imitating even the faults and failings of his models. Instead of being inspired by the beauties of the mediæval treasure-houses, and wandering, Aladdin-like, in transport through their pillared naves and under their vaulted roofs, drinking in the spirit of their works, which in time would well up again and flow from his inspired pencil, rectified, refined, and transformed to the necessities of his age, the copyist—afraid of the responsibility of his own individuality—shelters himself in the shade of the centuries, like a child clinging to its mother's skirts. Such is the terrorism of the archæologist. You may have heard the story of Dr. Robertson's beadle. After the doctor was translated from the parish of Mains to Glasgow Cathedral, the beadle of the Mains Church called upon him. The doctor took him to the cathedral, thinking to hear Tammas break out in admiration of the fine building. But Tammas only remarked that "It had nae laft, and was sair fashed wi' thae pillars." There was an important hint for architects in Tammas's criticism. In designing a building, an architect should take care that it is, firstly, made suitable for its purpose; and secondly, that any decoration it may have shall not be of such a character as to impair its usefulness. Now it is undeniable that pillars are a great "fash" to a modern church, and it is equally undeniable that in these days of iron they are wholly unnecessary. The widest church can easily be roofed without their aid. The main feature of our church service, more especially of the Presbyterian Church, is the sermon, and it is highly desirable that all the congregations shall see and hear the preacher. In the old cathedral it was not so; the service was more of a ritual, and the idea was that the ignorant mind of the worshipper should be impressed with awe by his surroundings, an effect which the solemn, massive building, with its forest of pillars, vaulted roof, sculpture, paintings, gorgeous vestments of the priests and solemn processions, was highly calculated to produce. Those pillars were no "fash" to the mediæval worshipper, or he would have had none of them, but as it was they suited both his worship and the means of construction within his reach, and therefore he adopted them, and with his lively fancy clustered them and carved them, until he made them things of beauty. I do not mean to say that a modern church should not be built with nave and aisles, but when it is so it should be of such size that the nave only is used for service, leaving the aisles for passages or as open spaces for grandeur of effect. As Mr. Waterhouse said in one of his Presidential addresses at the Royal Institute: "We may love and reverence the past as archæologists, but as architects let us not forget that archæology is the bane of living, progressive Architecture."

THE FUTURE OF ARCHITECTURE.

And now a word as to the future of Architecture in our own country. The thought has been expressed by many: Why is there no new style of Architecture invented? And they lament the inartistic spirit of our time, which seems to them to fall behind past ages in this respect. These people forget that no architectural style has ever been invented, but has been the slow growth of centuries—a growth, at the same time, nursed and modified by the ever changing manners and customs of men, by their religious beliefs and physical conditions. A little reflection will show that it is not to be expected, even in an age like ours.

unsurpassed for progress in science and invention, that either new materials or inventions will quickly work such a radical change in building design and construction as to create anything that could be called by the honoured name of a "Style." The world moves slowly in such matters, and it may even be that, all unknown to ourselves, as it has always been to those who were the busy agents in producing it, a style may be developing under our hands and eyes which, in the estimation of those to whom we may be as ancients, will be fit to take rank alongside the great architectural styles of the world. Though we, like children on the seashore watching the rising tide, may think that the recoil of the wave is evidence that the tide of Architecture is ebbing, we may be sure that, when viewed in the broad light of centuries, it will be found that the tide was ever advancing, and that our age has also contributed its quota to real and lasting architectural progress. We have greater scope than any ancient nation ever had for architectural development, and greater wealth wherewith to build. While their opportunities were mostly limited to temples, palaces, and tombs, we have many other buildings demanding the greatest efforts of architectural genius, such as universities, asylums, hospitals, law courts, municipal buildings, exchanges, and the like. What the British style may be like when it has arrived at its perfection—whether it will be akin to Renaissance, Gothic, or Classic; whether the chief material will be stone, or brick, or iron, or concrete, or some new thing undreamt of in our philosophy—it would be idle to speculate. Meantime, let us, with unprejudiced minds and honesty of purpose, strive to satisfy the wants and aspirations of the age we live in, using judiciously but fearlessly the new inventions, materials, and opportunities which our scientific age and powerfulation have so abundantly provided for us, designing with Beauty, and building with Truth, assured that thus, and thus only, will we worthily fulfil our part in the creation of a National Style of that great and noble Art which we all so much love and admire.

THE residence in Kennington, formerly occupied by the Bishop of Rochester, is to form the site of a new theatre.

THE Holborn Board of Works has placed a newspaper kiosk near the Royal Music Hall, in Holborn; another at the end of Shaftesbury Avenue, and a third at the corner of High Street and Oxford Street.

THE question of the extension of the Dundee Central Baths, and the providing of a separate entrance for females, is being considered by the Markets and Baths Committee of Dundee Town Council. The cost of carrying out the work would be about £7000. The engineer has been instructed to prepare and submit plans, sections, and tenders for approval.

A SCAFFOLD accident happened last week at the new Roman Catholic Cathedral in Ashley Gardens, Westminster, now in course of erection. The scaffold gave way suddenly, and several men were injured. The accident happened while the four men in the hospital were on a scaffold in the interior of the building round one of the piers, 15ft. from the ground.

A BILL to incorporate a company for the purpose of constructing a railway from Windsor to Ascot has been deposited at the Private Bill Office. The proposed railway, which will be just over ten miles in length, is intended to commence by a junction with the Windsor branch of the Great Western Railway, and to terminate at Sunninghill by a junction with the Ascot and Aldershot branch of the South-Western Railway Company.

THE Estate Committee of the Town Council of the Pembroke Dock Ward of the borough of Pembroke have had under consideration the question of building a new town hall, with municipal and other offices attached, at Pembroke Dock. It was resolved to recommend the Town Council to provide a new town hall, with county court, post-office, &c., attached, and that steps be taken to acquire a site.

* A paper recently read before the Edinburgh Architectural Association.

Professional Items.

ABERYSTWYTH.—The contract for the proposed new County School has been signed. The price is £3195. The new school is to be finished within twelve months under a penalty of £25 per week. The contractors are Messrs. Belham and Co.

AYR.—Steps are being taken towards securing a site for the Ayr Town Hall. The previous building, which was burned some time ago, was, so far as internal appearance went, one of the finest in the West of Scotland, but unfortunately it was also one of the draughtiest. The hall had the disadvantage of not being on the ground and of having too few exits. The old hall was estimated to accommodate 1500 persons, and a structure calculated to hold 2000 or 2500 would suffice for the next twenty or thirty years. One of the proposals on foot is to buy a considerable quantity of property fronting High Street and adjacent to the old hall, and thereby have the public offices and public buildings together. The other site which finds favour is at the head of Sandgate, and there being only a few hundred yards between the two it is as central, and the cost of the property which would have to be acquired would be considerably less.

BARNSELY.—Mr. J. H. Taylor, borough surveyor, has issued his return of plans passed and buildings erected in Barnsley in the past year and since 1880. It shows that last year 96 sets of plans were deposited for 263 buildings, of which 199 were houses, five shops, two public buildings, 12 workshops, and 45 alterations; and 263 buildings were erected, of which 206 were houses, seven shops, four public buildings, seven workshops, and 39 alterations and additions. In 1896 the number of buildings proposed was 409, and buildings erected, 348; in 1895, 428 were proposed, and 231 erected; in 1894, 340 proposed, and 214 erected. The return shows that building has gone on in Barnsley since 1890 at a much greater rate than ever before. The population of the borough in 1891 was 35,427. Since then 1348 houses have been built and certified.

BIRMINGHAM.—The present year will see further changes in connection with the reconstruction of property in the centre of Birmingham. The new arcade scheme will clear away the Old Library building, and a number of queer old back premises between Union Passage and High Street, which now cover ground that has attained a greatly enhanced value. The leases have recently fallen in of the properties in Temple Row, between the Conservative Club and Cherry Street, while the leases are also expiring of the property on the south-west side of Cherry Street, between Temple Row and the City of Birmingham Bank. The Temple Row property includes the two old professional residences matching in architectural style those nearer to the Royal Hotel. The site comprises about 500 square yards, of which a new ninety-nine years lease has been taken by Mr. Moore-Bayley, who proposes to erect an important corner building which will accord with the Architecture of the Conservative Club and the new block, now in course of construction, between the club and Needless Alley. The lower portion will be suitable for the offices of a public company, while the upper floors will be planned as professional chambers. In connection with this reconstruction, and also of the adjacent buildings in Cherry Street, a proposal has been made to the municipal authorities for the widening of the thoroughfare, which, at present, is one of the most congested in the city. The roadway at the present time is only of sufficient width to accommodate two vehicles, and blocks are of frequent occurrence.

BRISTOL.—The Bristol Corporation Finance Committee have interviewed several candidates for the post of city estate surveyor and valuer, the salary of which is £700, rising to £1000, a year. Their choice fell upon Mr. Peter Addie, manager of the Birmingham

Corporation Improvement Scheme. Mr. Addie, who was formerly in the employ of the Swansea Corporation, went to Birmingham about two years ago, in succession to Mr. A. Davis, who was appointed agent of the Calthorpe estate. His salary was £300 per annum, and it was increased to £350 at a meeting of the City Council in December last, on the recommendation of the Improvement Committee.

CLAUGHTON.—The new St. Michael's Church has just been consecrated. At present it consists of a chancel, transept, and one portion of the nave, and will accommodate from 400 to 500 persons. When the architect's design is completed the nave will be still further extended to the west, and the church will seat nearly 800 persons. The architects were Messrs. F. and G. Holme, Crosshall Street, Liverpool, and the contractor, Mr. William Hall, 60, Christian Street, Liverpool.

COVENTRY.—During the whole of last year the building trade in Coventry was very active, although it did not reach the unprecedented dimensions of 1896, when nearly the whole of the cycle firms doubled the size of their factories to an approximate value of £102,320. The total value of the property erected in 1896 was £207,248, compared with £79,357 in 1895. During the past twelve months the number of houses finished, in regard to which certificates of occupation were granted, was 350, as compared with 171 in 1896, 129 in 1895, 200 in 1894, 193 in 1893, and 117 in 1892. At the present time quite a number of large building schemes are in progress. Foleshill has also rapidly developed, new industries having settled there.

DEWSBURY.—The Trinity Congregational Church has been reopened, alterations and extensions, costing about £3000, having been carried out under the superintendence and in accordance with the designs of Mr. A. H. Kirk, of Dewsbury.

ILKESTON.—New Board schools have been erected in Gladstone Street, Ilkeston. The schools are constructed upon the central hall system, with separate class-rooms for each standard or class of children, to accommodate 900 children. They are built in two blocks of buildings, viz., the boys' school and girls' school forming a separate block to accommodate 600 children, being 300 boys and 300 girls; and the infants' school forming a separate block to accommodate 300 infants. Each school has cloak-rooms and teachers' rooms, and is approached by separate entrance lobbies into each central hall, and leading from the central hall of each school are six class-rooms for each school. The central hall to the boys' and girls' school is divided by a revolving partition, keeping the boys and girls distinctly separate during school hours, and, when requisite, the revolving partition can be raised, to form a convenient hall for entertainments, &c., the dimensions being 101ft. by 24ft. The infants' central hall is 48ft. long by 24ft. wide. A cookery school is also provided, with entrance lobby, pantry, and scullery, and forms a detached building for use during school hours, and also for evening cookery classes. Separate lavatories are erected for each school, and there are covered playgrounds. The whole of the buildings are constructed of red Leicestershire bricks, and the roofs are covered with Broseley tiles; the interior floors being covered with solid wood block floors laid upon concrete. All the internal walls of the central halls, class-rooms, and cloak-rooms have a white glazed brick dado 4ft. high, the face of the walls above the dado being of plaster stucco face. The central halls, class-rooms, and cloak-rooms to each school are heated by hot-water circulating pipes, a separate heating chamber with coalhouse being provided for each block. The total cost of the erection of the schools was £9945, exclusive of the site and the furniture. The architect was Mr. Charles W. Hunt, and the contractor Mr. W. E. Shaw.

LEICESTER.—The buildings erected in Leicester during recent years indicate the transition from a struggling manufacturing town to a prosperous industrial community. During the year 1897 the building progress has been sustained. The Established Church has commenced and partially completed a church at Knighton Fields and another at New Evington. The Wesleyan Methodists have opened Wesley Hall on the Mere Road, a commodious building, in style a modern adaption of the Renaissance in brick and stone; also the Mantle Memorial Hall in Belgrave Gate, with an attractive elevation in terra-cotta. Adjoining this is a large hall, in course of erection, to meet the demand already felt for increased accommodation. The Baptists have opened Carey Hall in Catherine Street. Though plain and economical in design, it is well planned. The building of a Synagogue in Highfield Street has also been commenced. The Technical Schools in the Newark form an imposing pile of public buildings. The Belgrave district has been provided with public baths and a free library, which, though plainly treated, exhibit simplicity and refinement of taste in design. Messrs. Faire Brothers' warehouse in Rutland Street is Leicester's architectural achievement for the year. The two elevations are built in terra-cotta, designed in free Renaissance style. The doorway at the corner, with the clock over, surmounted by copper dome, makes a very effective piece of corner Architecture. Generally, the lower stone is plain, the richness of decoration increasing to the summit. Messrs. Pearson and Bennion are completing large engineering works on the Belgrave Road. This marks a very great advance in factory building. Quite a considerable number of smaller factories and extensions of existing ones have taken place during the year.

LIVERPOOL.—The alterations to be carried out in the interior of the Town Hall during March and April are calculated to greatly improve the appearance of many portions of the building. The stone slabs with which the corridors on the ground floor are laid are to be replaced with artistic mosaic work, in keeping with that in the vestibule, and the skirting boards are to be renewed with mahogany. The principal improvements, however, will consist of the provision of a number of retiring rooms, together with a gentlemen's smoke-room, &c., the latter of which will be placed underneath the crypt, near to the Council Chamber.

The Liverpool China and India Tea Company has erected a new café at 37, Castle Street, comprising a spacious suite of rooms on three landings. The rooms are designed in copy of Eastern divans, and are highly artistic. The ground floor is divided into two parts. The entrance hall is in the Renaissance style, consisting of wall fittings, &c., in Chippendale mahogany of beautiful design. The walls are hung with embossed leather in copper and gold, designed by Mr. Aston Webb, and the upper portion of the walls and ceiling, including the staircase to the mezzanine floor, and papered with wall hangings designed by Mr. G. H. Morton, jun. Passing through a mahogany screen, the ground floor café is entered, and this is treated in striking contrast, its delicate beauty of ivory enamelled woodwork consisting of a series of nooks arranged to accommodate two or four persons each. The style chosen is that ornament of the eighteenth century, or "Adams" period. The walls are panelled with a rich damask design in tones of tomato red, and the arched screens draped in rich gold-colour silk curtains, the larger arches being in tomato red velvet. Each nook is provided with settees upholstered in green frieze velvet and chairs *en suite*, a portion being reserved for ladies only. The first floor, or mezzanine, is treated after the manner of an Oriental divan or smoking-room. The colour decorations are of rich description, and the fretted wood screens and alcoves are of unique design, and have all the appearance of old work. The walls are decorated by Moresque arcing, the panels formed being decorated in glowing crimson tones, and the large spandrels elaborately treated in Eastern

colours and gold. The general effect of the arcaiding is continued in the wood screens, forming alcoves, each arranged to accommodate four persons. Divan seats are provided, and the introduction of Turkish rugs in harmonious colours completes a very perfect whole. The basement smoking-room is the largest portion of the café, and is decorated in modern æsthetic design. The room is divided by fretted dark oak screens of elaborate description. The whole of the works have been designed and carried out by Messrs. G. H. Morton and Son, 79, Bold Street, Liverpool.

NEWCASTLE.—The memorial stone has been laid of Erskine Presbyterian Church, Rye Hill, Newcastle. The new church, which is to be erected on the old site in Rye Hill, from designs and under the superintendence of Messrs. Badenoch and Bruce, architects, will accommodate fully 500, an increase of nearly 200 over the old building. It is designed in late Gothic; the walls will be of rubble, faced on the west or Rye Hill front by sneaked rock facing and chiselled stone dressings. Two large entrance porches are placed projecting into the open ground in front, giving access to vestibules and staircases leading to galleries which run round three sides of the church. The roof is constructed with hammer-beam trusses in pitch pine, with cleaved ceilings following the line of rafters and collars, and divided into panels with planted mouldings. The existing schoolroom in the basement is not to be interfered with, but the front portion under the vestibules will be converted into a ladies' room and tea-room, with wide vestibule and entrance lobby, lavatories, &c. The whole scheme includes a hall, seated for about 150, on the vacant site to the north of the church, with minister's vestry, both being on the same level as the ground floor of church; and on the basement level there will be infants' classroom, session room, heating chamber, and lavatories. The present contract is for the church only, Mr. Robert Veitch, of Barrack Road, being the contractor. The heating will be by low pressure hot water pipes and radiators. The ventilation is by Cousland and Mackay's "Climax" roof ventilators, with Sherringham air inlets, and the electric light is to be introduced throughout.

STONEHAVEN (SCOTLAND).—The new addition to St. James' Episcopal School has been opened. The addition consists of two classrooms, fitted up with all the most improved school furnishings, a teachers' room, and lavatories. The architect was Mr. J. A. Souttar, Aberdeen; Messrs. Smith and Co., Stonehaven, carrying through the mason work; and Messrs. R. Mitchell and Sons, Stonehaven, the joinery work.

STALYBRIDGE.—The extension of Castle Hall Church, which was taken in hand by the parishioners in May, 1896, in connection with the parochial jubilee, at a total cost of £2000, has been provided with a new parochial vestry, a side chapel, an organ chamber, and various alterations which add 130 sittings to the church. The chancel has been tiled, and new windows of cathedral glass placed throughout the edifice. The organ has been rebuilt by Messrs. Alexander Young and Co.

STRATFORD-ON-AVON.—The work of restoring the parish church of Stratford-on-Avon has recommenced. The work includes the removal of the pews from the nave, preparatory to the relaying of the floor, and the provision of a more complete system of heating. The contractors for the work in the nave are Messrs. Smith and Son, of Milverton, and for the heating apparatus Mr. John Grundy, of Manchester and London, the architect for the whole scheme of restoration being Mr. G. F. Bodley, A.R.A.

YEovil.—Carved figures representing the four Evangelists (Matthew, Mark, Luke, and John) have been erected within the recesses above the Holy Table in St. John's Church. The figures are of Beer stone. Mr. J. Nicholson Johnston, of Yeovil, was the architect, and Messrs. Harry Hems and Son, sculptors, of Exeter, executed the work.

Views and Reviews.

EXETER: THE CATHEDRAL AND SEE.

That the need existed for well-written, well-illustrated handbooks on our English cathedrals is beyond dispute; that that need is being well and truly met by Messrs. George Bell and Sons' "Cathedral Series" is, we think, equally indisputable. The aim of each writer in producing this interesting series, we are told, is to bring forth "a work compiled with sufficient knowledge and scholarship to be of value to the student of archaeology and history, and yet not too technical in language for the use of an ordinary visitor or tourist." It is in the admirable way in which this object has been fulfilled that the great merit of the series lies. There is a compact fullness and scholarly touch in these records of the history and beauty of England's noblest shrines which, with a wealth of illustration, render them superior to the local guide-book, whilst they are more portable than the elaborate monographs dealing with some of our cathedrals. And what applies to the series generally, applies to the number of it before us, "Exeter: The Cathedral and See." It is by Mr. Percy Addleshaw, B.A., who has made a worthy contribution to the literature already existing on the subject of Exeter and the cathedral there.

Exeter: The Cathedral and See. By Percy Addleshaw, B.A. Published by Messrs. G. Bell & Sons. Price 3s. 6d.

ENGLISH CHURCH ARCHITECTURE.

Doubtless there is a vacancy at the present time for a simple, clear, well-illustrated treatise upon English Gothic Architecture. The existing works were, almost without exception, written in the early days of the Gothic revival, a full generation ago, and naturally we know more now than the writers did, while what satisfied our predecessors in the way of illustrations—what under their circumstances were really wonderful productions—would scarcely be looked at now. Draughtsmanship has risen to a pitch of perfection of which they scarcely dreamed, the camera has come into universal use for illustrative purposes, and the methods of reproducing drawings have been entirely revolutionised. But a book which is inconsequential, which is devoid of much originality or thoughtfulness, and which is illustrated only by a series of more or less scratchy sketches, cannot be said to meet fully the requirements. Such is the book before us. Its second chapter may almost be taken as a fair sample of the whole. It is entitled "The Crypt," and the first paragraph is devoted to that subject; but the rest—there is not much of it, fortunately—is given up to a series of wandering remarks upon shrines and relics.

"Progress of Art in English Church Architecture." By T. S. Robertson. Published by Gay and Bird, 32, Bedford Street, Strand. Price 5s. Small 8vo.

THE Japanese Government, which has just ordered to be commenced the work upon the new harbour at Osaka, at a cost of 30,000,000 yen, has now decided to inaugurate a similar enterprise at Nagasaki.

A NEW development of the work of the Battersea Polytechnic has been made by the opening of a technical day school. The school has been formed to give special instruction to young apprentices and to lads leaving the elementary schools who are desirous of entering the building, mechanical, or electrical engineering trades.

SIR LEADER WILLIAMS and Thomas Meek and Sons, engineers to the Workington Corporation, have furnished the estimate of the cost of the new dock and railways at Workington, which shows a total of £349,417, the pier being £19,400, breakwater £22,600, entrance channel £26,700, wet dock £213,000, and railways £67,600.

THE Board of Control has received tenders, on plans and specifications prepared by Mr. Cowan, C.E., for certain extensive works to be executed in connection with County Down Asylum, and Mr. Coulter, builder, Newtownards, has been appointed contractor at £10,608 14s.

Correspondence.

"ECCLESIASTICAL DOORWAYS IN CORNWALL."

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have read with interest Mr. Edward Sedding's account of the ecclesiastical doorways found in Cornwall. With regard to Mylor Church, near Falmouth, I was the leading hand during its restoration, under the late Rev. J. McMurray, the vicar and architect of the restoration. Mr. Sedding states there were only three churches in Cornwall with frescoes, Fowey and Lostwithel being included. I wish to say that before the restoration of Mylor there existed some fresco paintings, but owing to the rottenness of the old plastering it was found impossible to preserve them, and an artist sketched the same with many other points of interest, viz., the old Norman doorway and an ancient cross or stone crucifix, parts of another Norman doorway found in rebuilding the north wall of the church; these parts, with new additions, form a doorway at the west end of the church. These, with a figure in fresco painting, found some few years previous to the restoration of Mylor at Lanivet, near Bodmin, were put in pamphlet form with the above mentioned illustrations. —I remain, Yours obediently,

JAMES H. HARRIS.

THE REGISTRATION OF ARCHITECTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—If I mistake not, there is a very gloomy future in store for architects unless some great move be made in the direction of registration. At present we have no fully recognised authority whatever in the Profession, no power to stop or even check the evils that have gone on festering for years, no organisation to provide for us such useful helps as wire codes, vocabulary of authorised abbreviations, and short, comprehensive terms, colour definitions, art standards, railway facilities, patent tests and records, &c.

In the old days when, with a few exceptions, a man's work lay chiefly in his own district, the clumsy machinery we still have worked tolerably well, but now that we are forced to travel far and wide, some improvements in routine are urgently needed. If I may presume to advise the younger men, I should say, agitate for the formation of a great building guild, imperial rather than insular, comprehensive, and therefore powerful. Include every architect and all assistants; enrol the builders, as they will give it a practical character; invite artists, sculptors, &c., to join, as they will give it artistic tone.

Such a guild as this would slowly but surely give us the reforms so long needed, which I need not mention. I venture to think one good result may be looked for—the annual criticism of the Guild Council would act somewhat as the governor upon an engine—the more work a man grasped at, the better he would be expected to do it, instead of the reverse, as at present.

Perhaps a few so-called "successful men" who are suspected of running their offices as money-making affairs would shrink from such a guild, but they must remember that architects are made for Architecture, not Architecture for architects.—I am, yours faithfully,

WILLIAM LUNN.

Great Malvern, Jan. 8, 1898.

MR. Edison announces that he has made a new discovery of great importance, of a metal which, when mixed in certain proportions with smelted iron, renders cast-iron as tough as the same metal when wrought.

STUART and REVETT, who travelled in Greece last century, sketched a small Ionic temple on the left bank of the Ilissus, near the fountain of Kallirrhoe, which has disappeared since then. Skias, however, has recently discovered its foundations about a hundred paces from the celebrated spring. Herr Dörpfeld regards it as the temple of Artemis Agrotera, mentioned by Pausanias.

Trade and Craft.

RE THE SMOKELESS FIRE COMPANY.

Mr. Ernest E. Pither informs us that, "having purchased the whole of the patent rights, stock-in-trade, goodwill, and patterns of the Smokeless Fire Company (in liquidation), we are transferring the business, for the time being, from 100, Shaftesbury Avenue, to the Central Depot of the 'Radiant' Stove, 36, Mortimer Street, W. Mr. E. P. Milne, heating engineer and expert, will continue his management, and give personal attention to all enquiries and orders, and, assisted by an able staff of fitters, &c., carry out all work."

A MUCH-SUMMONED BUILDER.

At the West London Police-court Mr. Rose disposed of a batch of 105 summonses against Mr. Joseph Wilson, a builder, issued at the instance of the London County Council, with reference to the erection of twenty-one houses in Stephendale Road, Tounmead Road, Fulham. The cases were formally opened some time ago, and had since been standing over for an arrangement. The complaint against the defendant was that he had used in the erection of the houses bad mortar and bricks, and had been guilty of other offences under the Building Act.—Mr. Seager Berry, who represented the Council, said the defendant had carried out remedial works, and was doing all he could loyally to complete them. He (Mr. Berry) left the matter in the hands of the magistrate to fix the penalties and costs.—Mr. Macmorran, Q.C., for the defendant, agreed to the arrangement, but mentioned that the remedial works had cost him £1000, which was rather hard upon him, as the houses were erected under the supervision of the district surveyor.—Mr. Rose then fixed nominal penalties in each group of summonses, amounting in the whole to £4 4s., with 18 guineas costs.

THE FREE LABOUR PROTECTION ASSOCIATION.

The Free Labour Protection Association, which was formed in July last, and has its central offices at 7, Victoria Street, Westminster, has published a report of its proceedings to the end of 1897. Since its formation the Association has added to its original statement of objects the following: "To give such help to employers during strikes as may seem best calculated to further the aims of the Association, and upon such conditions as the Executive Committee may determine." Action has been taken in regard to, among other strikes, the Blackburn builders. Among the men engaged by the Association to take the places of unionist workmen on strike at Blackburn were some Dutch carpenters and joiners from Amsterdam. Owing to the successful importation of non-unionist labour in Blackburn, the strike, so far as its effects upon the master builders are concerned, is now ended. The committee of the Association desire to make it perfectly clear that the operations of the Association are not directed against trade unionism as such, but only against such abuses of trade unionism as interference with free labour and attempts to coerce employers in the management of their business—two evils which, in the interests of employers and employed alike, should be firmly repressed. The membership of the Association is claimed to be "nationally representative," and includes all the leading quarry owners, iron and steel manufacturers, and the engineering employers, as well as the master builders, and representatives of many other trade interests.

The St. Pancras Vestry has resolved to replace Euston Road from Gower Street to Seymour Street, and that hard Australian wood should be used in lieu of granite setts, the estimated cost being £4828.

RECENTLY two cottages in Waggon Road, Wincham, near Northwich, collapsed. The dwellings were part of a ruined block of six which were abandoned. Owing to the subsidence of the ground beneath the whole were bolted together, but, despite this, the two end buildings fell away.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—Accepted for taking down and re-building walls, Berryden-road, for the Town Council. Mr. Wm. Dyack, Borough Surveyor, Town House, Aberdeen:—
Gall and Walker, 45, Richmond-street, Aberdeen £985

ASHTON-UNDER-LYNE.—Restoring Fern Mill, Ryecroft, after fire. J. H. Burton, architect, 2, Guide-lane, Hooley-hill.
E. Pike, Hooley-hill £190 0
E. Marshall, Ashton-under-Lyne 115 0
J. Riddard, Ashton-under-Lyne 112 0
John Robinson, Ashton-under-Lyne (accepted) 112 0

BROMLEY (Kent).—For the erection of new premises for Martin's Bank, Limited, and shop for Mr. R. Taylor. Mr. Ernest Newton, architect:—
Martin's Bank. Shop Premises.

R. A. Lowe	£4,040	£3,120
Armand and Son	3,962	3,117
Colls and Son	3,986	3,069
Crossley and Son	3,900	3,000
D. Payne	3,900	2,991
T. D. Grady	3,855	2,995
Patman and Fotheringham	3,821	2,963
Maid and Harper	3,759	2,975
F. P. Duthoit (Bromley)	3,667	2,797*

* Accepted.

BRIDLINGTON.—For the erection of dwelling-house, stable, &c., Carlton-street. Mr. J. Smith:—
James Walker £490 J. Sawdon £357
W. Barnes 378

BUSHEY LEATH.—For alterations and additions to Powis Lodge, Bushey Heath. Messrs. Higgs and Rudkin, architects, 25, John-street, Bedford-row. Quantities by Mr. Alan Paul, 6, Quality-court, Chancery-lane.
Parfit and Co. £1,534 J. Smith and Sons £1,289
H. Wall and Co. 1,325 Henry Line 1,289
Wm. Bailey 1,295 Wm. Wade (accepted) 1,187

CARDIFF.—For alterations and additions, 290, Bute-street, Cardiff, for Mr. J. Lewis. Messrs. Habershon and Fawcner, architects. Quantities supplied:—
J. Beer and Sons £483 0 0 G. Haywood £450 0 0
C. Eric and Sons 479 10 A. J. Howell & Co. 415 13 10
Shepton and Son 458 10 0 Melhuish Bros.* 415 0 0
Knox and Wills 455 0 0 * Accepted.

HUDDERSFIELD.—For the erection of seven houses, Moor-lane, Netherton. Mr. J. Berry, architect, 9, Queen-street, Huddersfield:—

Masonry.—W. Pearson and Son, New-street, Netherton	
Joinery.—E. Parkin, Netherton	
Plumbing.—J. Hebblethwaite, Road-side, Netherton	
Plastering.—E. Jessop, Netherton	£1,700
Painting.—W. Littlewood & Son, Netherton	
Slating.—Pickles Bros., Fountain-street, Huddersfield	
Concreting.—J. Cooke, Little Royd, Huddersfield	

KINGSTON-ON-THAMES.—Accepted for additions to the Royal County Theatre, for the Directors of the Kingston-on-Thames Theatre Co., Limited. Mr. J. Charles Bourne, architect, 62 and 63, Basinghall-street, E.C.:—
Kirk and Kirk, Westminster £295

LONDON.—For additions to stables and repairs, High-street, Kensington, for Messrs. Rickett Smith & Co. Messrs. Potts, Son, and Hennings, architects:—
E. Green £374 Mattock Bros.* £284
W. Gladding 348 * Accepted.

LONDON.—For rebuilding the "King's Arms" public-house and shop adjoining, being Nos. 11 and 9, Little James-street, W.C., for Mr. Charles L. Soullard. Messrs. Thurgood and Martin, architects. Quantities by Messrs. Franklin and Andrews:—
Laing and Son £3,367 J. Greenwood £2,869
Prestage and Co. 3,179 Goff and Co. 2,851
Bywaters 2,943 T. Sobey 2,784
F. Bollar 2,930 T. W. Rhodes 2,650

LONDON.—For works required for pulling down and rebuilding the "Elephant and Castle" Tavern, Newington Causeway, for Mr. A. Meek. Mr. John Farrer, architect and surveyor, Albion-chambers, 23, Finsbury-pavement, E.C. Quantities by architect:—
Higgs and Hill £41,840 Mattock Bros. £28,940
W. Cubitt and Co. 40,783 Patman and Fotheringham 38,910
B. E. Nightingale 39,975 Lascelles and Co. 38,850
J. Parnell and Son 39,133 W. Downs 38,267
S. G. Bird 39,100 J. Smith and Son 36,696
Perry and Co. 38,950 H. L. Holloway 35,933
W. Shummar 38,950

LONDON.—For erecting the All Farthing-lane Branch of the Wandsworth Library, for the Wandsworth Library Commissioners. Mr. Henry Branch, architect and surveyor, 25, Cheapside, E.C. Quantities by the architect:—
G. and A. Smith £2,701 Carmichael £2,447
J. Cooper 2,631 Henry Brown 2,437
J. Gibbs 2,610 Turtle and Appleton 2,418
R. Ronald 2,571 J. Turner 2,406
Parsons and Co. 2,565 Johnson & Co., Limited 2,363
Holloway Bros. 2,519 Charles Horton* 2,360

* Accepted.

LONDON.—For rebuilding the "Harp of Erin" beerhouse and No. 1, Watergate-street, Deptford, for the Anchor Brewery. Mr. John Jas. Downes, architect, 192, Lewisisham High-road, S.E. Quantities by Mr. Henry Theobald Long:—
H. L. Holloway £4,622 S. J. Jerrard and Son £4,066
S. R. Best 4,200 3,550

LONDON.—For new kitchen and addition to dining-saloon at Odone's Restaurant, No. 152, Victoria-street, S.W., for Mr. G. Odome. Mr. Robert Willey, architect, 83, New Bridge-street, E.C.:—
Patman and Fotheringham T. Coulthard £1,965
ham £2,473 J. Bennett 1,738
Lascelles and Co. 2,039 J. Tyerman 1,570

LONDON.—For alterations to Nos. 1 and 153, Newington Causeway, S.E., for the Capital and Counties Bank, Limited. Mr. F. A. Powell, architect, 344, Kennington-road, S.E.:—
Colls and Sons £3,110 H. Burman and Sons* £2,647
J. Tyerman 2,860 Canning and Mullins 2,567
W. Downs 2,832 (withdrawn)
W. Smith 2,757 * Accepted.

LONDON.—For adapting for a school, Brondesbury-hall, Iverson-road, N.W., for the London School Board. Mr. T. F. Britton, architect:—
R. A. Yerbury and Sons £185 0 0 Stevens Bros. £136 0 0
Sons 170 0 0 H. Eady 120 0 0
Marchant and W. Hornett 110 0 0
Hirst 187 10 0 F. T. Chinchin* 107 18 6

* Accepted.

LONDON.—For adapting for a temporary school, Mission-hall, Old Ford-road, E., for the London School Board. Mr. T. J. Bailey, architect:—

A. E. Symes	£149 0	D. Gibb and Co.	£133 0
G. Barker	140 0	J. T. Robey	130 0
J. Kybett	135 0	J. F. Holliday	129 10

* Accepted.

LONDON.—For altering boys' and girls' entrances at the Wilmot-street schools, for the London School Board. Mr. T. J. Bailey, architect:—

G. Wales	£115 7	Johnson and Co.	£92 10
Silk and Son	109 0	G. Barker (accepted)	81 0
Harrison & Spooner	93 0		

LONDONDERRY.—For the erection of house in the city. Messrs. R. H. M'Elwee & Co., architects, 9, Carlisle-road, Londonderry:—

A. Dunlop, Little James-street, Londonderry £134

MAIDSTONE.—For additions to the Council's offices for the Corporation. Mr. F. Bunting, Borough Surveyor:—
George Pearce £370 0 H. A. Thomas £283 10
W. T. Barrows 296 0 W. J. Logan, Maidstone (accepted) 255 0
Thompson and Chapman 293 15

MIDDLESBROUGH.—For the execution of street works, Kingston-street, for the Corporation. Mr. F. Baker, C.E., Municipal-buildings, Middlesbrough:—

Kingston-street.
Jones's Annealed Concrete Company £177 12 8
J. T. Dixon, Preston (accepted) 164 10 3

Samuelson-street.
Jones's Annealed Concrete Company, Middlesbrough (accepted) £64 13 9

MITCHAM.—For the erection of four pairs of cottages at Lower Green, Mitcham, for Mr. R. A. Bush. Messrs. R. M. Chart and Son, architects, Croydon:—
J. Burges £4,334 H. Bacon £4,059
Smith and Sons 4,119 H. Haydon 4,017

MITCHAM.—For the erection of a boiling-house at Western-road, Mitcham, for Messrs. Blume, varnish manufacturers. Messrs. R. M. Chart and Son, architects, Croydon:—
D. Waller £812 E. J. Burnand £751
J. Burges 785

PONTEFRAC.—For the execution of drainage works, 5,700 yards pipe sewers, &c., Glasshoughton, for the Rural District Council. Mr. Malcolm Paterson, C.E., 35, Manor-road, Bradford:—
F. Eyre £4,691 15 10 M. Hall and Son £4,316 13 1
W. and J. Foster 4,686 1 1 W. Binns 4,342 16 4
Geo. Bell 4,488 6 0 A. Braithwaite & Co., Leeds* 4,162 8 9
Jackson Bros. 4,450 0 0 Jno. Bentley 4,408 1 4

* Accepted.

PONTYPOOL.—Accepted for the erection of house near St. James's Church, for the Pontypool Wesleyan Methodist Circuit. Mr. D. Davies, architect, Springfield, Pontypool:—
Bailey Bros., Pontnewynydd, near Pontypool £660

[Including certain items found by the owners.]

PRESTATYN.—For the erection of superstructure of Royal Victoria Hotel, Prestatyn (Contract No. 2), for Mr. Martin O'Connor, Liverpool. Mr. Richard E. Hughes, architect. Quantities by Messrs. Humphries and Moore, 136, Corporation-street, Birmingham:—
Roger Bateson £9,765 0 0 Chas. Burt, Liverpool £9,018 19 5
W. O. Russell 9,276 0 0 E. Morton Hughes 8,871 0 0
W. S. Wood & Co. 9,690 0 0 Bradney & Lloyd 8,885 0 0

* Also carried out Contract No. 1 (foundations), amounting to £1038 12s. 2d.

PUNEY.—For the erection of a block of residential flats on the Pune Embankment. Quantities by Mr. George Stephenson. Messrs. Palgrave and Co., architects, 28, Victoria-street, S.W.:—
Allen and Sons £13,650 Patman & Fotheringham £12,798
Yerbury and Sons 13,489 ham
Chessum and Sons 13,364 Perry and Co. 12,313
Holloway Bros. 13,350

SOUTHAMPTON.—Accepted for the erection of five cottages at Shirley, for Mr. J. Hayward. Messrs. Jurd and Sanders, architects, Portland-street, Southampton:—
W. R. Taylor £900

TRIMDON (Durham).—For the erection of a board school, Trimdon Foundry. Mr. James Garry, architect, 27, Church-street, West Hartlepool:—
J. Howe and Co. £1,941 0 0 Watt Bros. £1,619 6 8
W. O. Russell 1,783 0 0 W. C. Atkinson & Co., Stockton-on-Tees 1,783 0 0
Curry 1,680 0 0 Tees (accepted) 1,619 0 0
Manners 1,670 0 0

WANSTEAD.—For the construction of 1,900ft. 9in. pipe sewer, &c., for the Urban District Council. Mr. John T. Bressey, surveyor:—
D. Brewer £730 Grounds and Newton £450
H. Williams 550 Jesse Jackson 444
W. Gibbs and Co. 545 J. Bell 415
H. Clarke 529 H. L. White 400
T. Adams 519 W. Swaker 400
Joseph Jackson 477 W. Manders 370
French Bros. 473 A. T. Catley, 23, Lloyd-square, W.C. (accepted) 360
J. Reeves 468

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Surveying and Sanitary SUPPLEMENT.

JANUARY 19TH, 1898.

POLICE STATIONS AND PRISONS.

BY GEORGE H. BIBBY.

II.—SIZE OF CELLS.

(Continued from page xxxiv.)

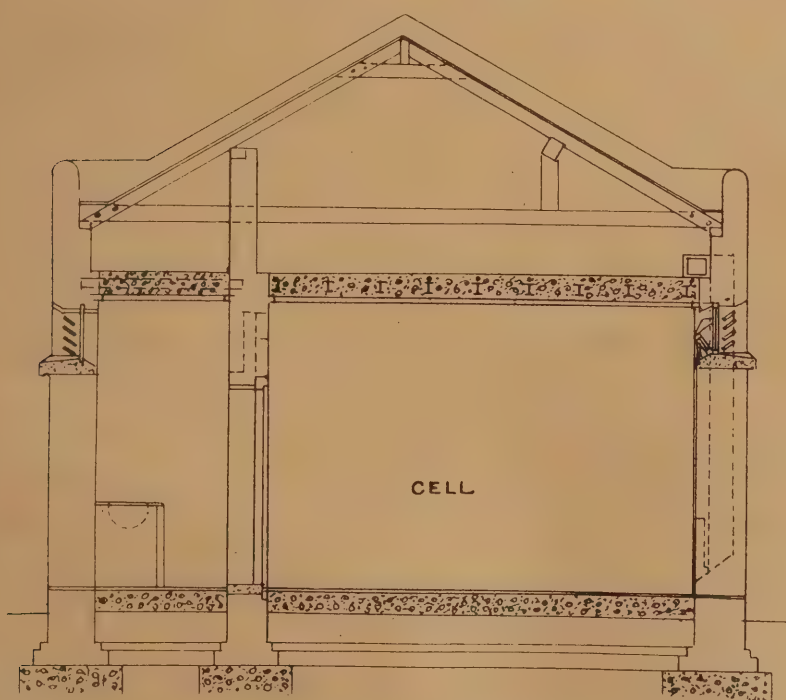
THERE are many important points to be attended to in the construction of the cells with the view of ensuring the security of the prisoners and the prevention of communication between them. In the first place the external walls should not be less than two bricks thick, or 2ft. of stone,

have 9in. in thickness through concrete and brick arch at the crown, but the floor may be of Portland cement concrete of not less than 9in. throughout.

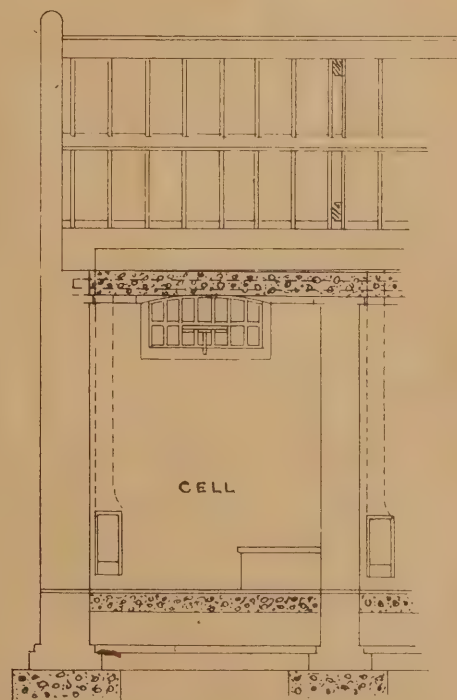
The division walls between the various cells should never be less than 14in. in thickness, so that no communication between the prisoners may be made. The windows of the cells are required to be fixtures, and may be glazed with rough plate, fluted, or ground glass, through which persons cannot be distinguished; they should be inaccessible from the outside to unauthorised persons, and should open towards a specially inclosed yard or space having no connection with other premises, while the cells should open off from a corridor separately arranged for males and females, except in the case of small police

keeping them in good working order and properly supplied and emptied). The floors must be of some suitable material, which can be readily washed, such as asphalt, &c. The above requirements are in accordance with the regulations of the Government in reference to such matters as are concerned with the erection of police stations, but with regard to prisons the Government have never issued instructions as to the details of their construction, and appear always to have built and altered these by the aid of their own officials.

In the accompanying Figs., and in those illustrating the opening part of this article, are shown different modes of cell construction and arrangements which have been approved and suggested by the authorities for the heating and ventilation of the same. It is required



LONGITUDINAL SECTION THROUGH CELL



TRANSVERSE SECTION
THROUGH CELL

FIG. 3.

and it has been suggested that considerable obstacles to breaking through the walls would be afforded by the introduction of courses of hoop-iron laid in the middle of the walls at intervals of 6in. apart. To guard against undermining, a brick arch should be turned in cement underneath the floor of the cell, cement concrete being filled into the spandrels and carried over the crown of the arch, so as to

stations. Opening out of these corridors or passages separate water-closets should be provided, but some of the cells may have water-closets in them (see plans). The water-closets for males and females must in any case be quite distinct, and dry-earth closets may be used instead of water-closets where there is a sufficient reason for doing so (and when proper arrangements can be made for

that fresh air should be admitted into the cells from the outside, through an inlet opening not less than 54in. in area, provided in the cell windows, a portion of which may be made to open; or that a ventilator be provided in the outer wall, but means must be provided to prevent any such openings, either in windows or ventilators, from being used for unauthorised communications between the prisoners.

DILAPIDATIONS.*

BY PROF. HENRY BUSHELL, F.S.I.

(Continued from page xxxv.)

THE lessee may elect either to execute the dilapidations or discharge his liability by payment of the claim; the latter plan probably is more satisfactory to both parties, certainly to the lessor, because it affords him a free hand, and supplies a favourable opportunity for executing any additional repairs, decorative work, or improvements. When the respective valuations are so divergent as to render a settlement impossible, it would invariably be prudent for a third surveyor or umpire to decide either the amount of claim or to settle the differences between them in the usual way. Builders' tenders for competition works, and compensation claims, backed up on both sides by experts of undoubted ability, are not the only calculations that afford a contrast of figures at once puzzling and amazing to a layman. Claims of dilapidations too often vary in the most inexplicable manner. I am of opinion that such divergences are brought about by the different views entertained by surveyors as to what are dilapidations, as well as what are their value. The learned judge, in the well-known case of *Gutteridge v. Munyard*, stated to the jury that "it would not perhaps be very fair to judge him (the lessee) very rigorously by the reports of a surveyor, who is sent upon the premises for the very purpose of finding fault." That may be a very proper remark, and I have already admitted that exaggerated notions in connection with dilapidations are by no means rare; but on the other hand, I most deferentially submit that it would be a dangerous precedent, and derogatory to the professional expert, if he is to be solely regarded as a mere advocate of a cause, submitting evidence he cannot substantiate. Without presuming to trespass on the subject of arbitrations, I may be permitted briefly to notice the advisability (under certain circumstances), of that mode of settlement of disputes concerning dilapidations and matters incidental thereto. In cases of this kind a reference to an arbitrator having a special experience in such matters would probably conduce to a speedier and more satisfactory settlement than by a trial by judge or jury. But, in either event, the surveyor representing the lessor and the lessee respectively, should, of course, be important witnesses. When such "disputes" are decided even by a skilled arbitrator of high position, the frequent result is that the award brings disappointment to at least one of the parties. In giving evidence as an expert witness, the surveyor acting for either party in a dilapidation case must be in a position to explain all general points affecting the practical side of

* A paper entitled "The Practical Application of the Principles and Law of Dilapidations," read before the Auctioneers' Institute.

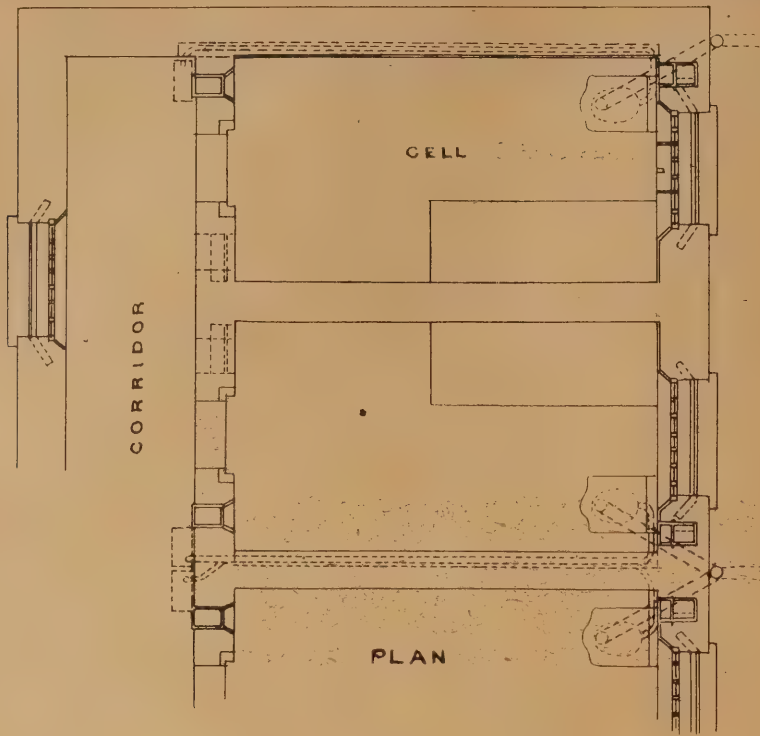


FIG. 2B.

Amongst the officially approved means for the warming of the cells of police stations are the following: Warm air may be admitted into the cells from the corridor, in which a stove should be provided to warm the air, through inlets in the upper part of corridor walls; or by circulating hot water pipes laid in a channel under the corridor floor, with inlets to the cells either near the ceiling or 12in. from the floor; or by pipes laid in the cells just above the floor, enclosed by a casing to form a chamber, in which the air brought directly from outside the building is kept in contact with the hot water pipes, and then admitted into the cell through gratings. In each of these three arrangements fresh air from the outside should be admitted in sufficient quantity to supply all the cells, the inlets being equal to 54in. for each cell; the area of the clear openings in the gratings should be equal to that of the inlets, and care should be taken that the gratings are arranged to prevent them from being made means of communication. The inlet openings for fresh and warmed air into the cells should have as few bends as possible; they should be provided with means of regulation by the prisoner, but not be capable of being quite closed; foul air should be extracted from the cells by means of flues, having a superficial area of not less than 54in. per cell. These flues should be led to the outer air in as direct a course and with as few bends as possible, but may pass into a main horizontal trunk and vertical shaft, which should be equal in area to all the flues led into them. The shaft should not be less in height than two-thirds of the horizontal distance from it of the most distant cell ventilated into it, and it is desirable that means should be provided to rarify the air in the shaft to assist extraction, but if this be not practicable, some form of induced current ventilator at the outlet should be provided. The openings into the extraction flues should be as far as possible from the inlets for warmed air into the cells, and, therefore, when the warmed air is admitted to the cells through the inner wall and near the ceiling, the openings to the foul air flues should be near the floor, in the outer wall of the cells, and clear of the beds.

Amongst other official suggestions or requirements are the following: Artificial light should be provided for the cells accessible only from the cell corridor; each cell should be provided with a fixed wooden bench, about 30in. wide, to serve as a seat or a bed, and a bell or gong communicator to enable the prisoner to call attention if necessary; the

cell doors and frames should be lined with sheet-iron, and have glazed inspection holes, with drop or cover, on the corridor side, and a strong flush lock to open from the outside only; the doors may be hung to open outwards, but in that case two barrel bolts must be fixed in addition to the lock to give security; there may be a tap for cold water and a lavatory in the passage, or basins and water may be supplied to prisoners in their cells.

From the above it will be noted that the construction of so small an apartment as a cell 13ft. by 7ft. by 9ft. involves many points requiring careful consideration and arrangement, but the grouping of a number of cells, the position of corridors and passages and of the offices in connection therewith, will be the subject of another paper and further illustrations.

(To be continued.)

As a result of a visit of a deputation of the Hexham Urban District Council to the experimental plant laid down at Yeovil and Exeter in connection with the septic tank system of sewage disposal, it has been unanimously advised that the Hexham Town Surveyor be instructed to prepare plans and estimates, with a view to adopting the system of the Tyne Green outfall.

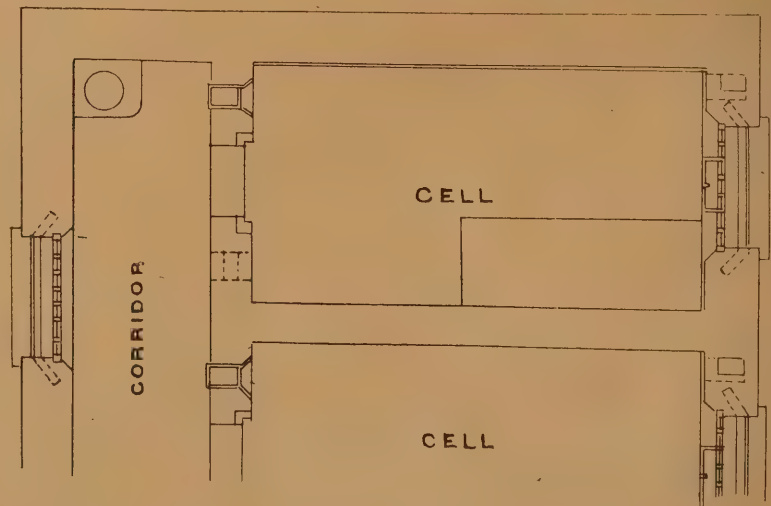


FIG. 3A. PLAN.

the action, and also to know, not only the original condition of the premises and the terms of the lease, but to have an intimate acquaintance with the covenants. Further, if acting for the lessor, the surveyor would do well to prove the *bona fide* nature of his claim; while on the other hand, if he be acting for the lessee, he should show the kind of maintenance, and to what extent, and in what manner the lessee has regarded and fulfilled the repairing covenants and similar obligations to the lessor. To further strengthen the lessee's case, his surveyor would do well to show the unquestionable validity of his valuation, the safeguard of a measured and detailed basis of pricing, the elimination of mere guess-work in making the valuation, the extent or non-existence of "sporting items," and possibly, as a further confirmatory proof,

A REPUTABLE BUILDER'S ESTIMATE, undertaking to execute in an approved manner the whole of the items included in the schedule. It is, of course, self-evident that to some extent a reference will be governed by the circumstances. For instance, if the scheduled dilapidations are admitted, then the arbitrator will have only to decide the amount; but if the divergence is considerable, as is not from various causes unlikely (for one surveyor may claim a dilapidation which the other absolutely repudiates), then he should decide on each separate matter in dispute. If any proof is needed of the importance to the qualified surveyor of what I have designated the practical side of this great subject, it is more than sufficiently established by the striking facts: first, that the Surveyors' Institution gives some prominence to dilapidations in its curriculum of examinations; secondly, that the Auctioneers' Institute exacts from its examinees a proficiency in this subject. The whole subject of dilapidations bristles with intricacies, and, unfortunate as it is, surveyors get little or no real practical help from legal decisions, except in the way of precedents, and even then it is often more or less bewildering for a layman to follow the ever-varying dicta of different learned judges, and the elaborations of able arguments in relation to questions which so immediately affect the

surveyor. The different degrees of repair, and many of the everyday expressions in dilapidations are examples, the true meaning of which never seem to be definitely settled. Then again, "dilapidations" from time immemorial have been more or less enveloped in obscurity, and considerable hardship has, in the past, been inflicted on tenants. The subject was formerly so remote as apparently to be little understood even by the highest tribunals. I should imagine that surveyors worked upon methods then which to-day would be considered clumsy and crude. In recent years there has evidently been a reform, and, although gradual, it has produced a more "equitable" relationship between lessor and lessee. Moreover, the subject now undoubtedly is better understood, which fact is in itself sufficient to be productive of better results. Too much care cannot be expended in either scheduling or assessing dilapidations. A summary mode of dealing with such has many disadvantages, and claims are often made in these days in such a hurried manner as not to be conducive to accuracy. There is occasionally a desire to extort from a lessee an unwarrantable amount for repairs, while, on the other hand, the same individual, or his surveyor, values at such a ludicrously small sum as to make negotiations exceedingly difficult. A case which came before my notice some few years ago affords an apt example of the first kind. A gentleman had a residence on lease, and the term having expired, the dilapidations were surveyed by the agents, who requested payment of a certain sum in satisfaction—I am not familiar with the terms of the lease, but I knew the house. The lessee, astonished at the claim, procured from a first-class builder an estimate undertaking to put the whole of the premises into thorough repair, inside and out, fit for a new tenant (which, I should imagine, represented something over and above the lessor's liability), and the estimate amounted to about one half of what the agents demanded! I ought to add that the firm of agents referred to are not members of the Auctioneers' Institute. Having now dealt at some length with the general principles of dilapidations and the position of the surveyor under different cir-

cumstances, I will at once approach another side of the subject, the importance of which, to the surveyor, cannot be over-estimated, and in so doing we shall be put into closer touch with the law in relation thereto. I refer to the surveyor's ever-present difficulty of determining the effect of certain covenants in leases which indicate the many different degrees or qualities of repair, such as "tenantable repair," "good tenantable repair," "substantial repair," "habitable repair," and such other familiar phraseology (always present in leases) as "uphold," "support," "sustain," "maintain," "amend," "keep," &c.; not undervaluing the importance of the expressions, "wear and tear," "reasonable wear and tear," "use and wear," "sufficiently," "reasonably-minded tenant," and numerous other distinctions. I think that

"TENANTABLE REPAIR" is amply illustrated by one of the most important dilapidation cases of recent times, viz., *Crawford v. Newton*, tried in the year 1886. Briefly the facts are as follows:—Under an agreement for a lease for five years of a dwelling-house called *Burley House*, near *Leeds*, the tenant was to leave the house in tenantable repair. In an action for damages by the landlord at the end of the tenancy (which continued for seventeen years) upon the footing that the tenant was liable to paper and paint, and leave the house in the same condition as when he took it, it was held by Mr. Justice Cave that the landlord was not entitled to compensation for waste, the tenant being liable to paint sufficiently to preserve the woodwork, but not to do papering or decorative painting. The plaintiffs delivered particulars, and claimed upwards of £300. In giving judgment the learned judge concluded an able and lengthy review of the case in these words: "Looking to the fact that the plaintiffs claim a sum of over £300, and they have established their right to only £20, and as to that, half is not to be found in the particulars at all, I think the proper course is to give my judgment for the plaintiff for £20, without costs." The plaintiffs appealed, but the appeal (heard before Lord Esher, Master of the Rolls, and Justices Bowen and Fry) was dismissed. (To be continued.)

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—				
J. H.	22	Bideford—Construction of Market	Council	R. T. Hookway, Architect, Bridgeland-street, Bideford.
	22	Guesting, Sussex—Erection of Police Buildings	East Sussex County Council	H. Card, County Surveyor, County Hall, Lewes.
	22	Halifax—Extension of Boiler Works		G. Buckley and Son, Architects, Town-chambers, Halifax.
	22	Wickham Market, Suffolk—Alterations to Market	Managers	Office of Works, Wickham Market, Suffolk.
	23	Cullingworth—Thirteen Houses		D. Weatherhead, 55, Devonshire-street, Keighley.
	24	Bristol—Erection of School	School Board	La Trobe and Weston, 20, Clare-street, Bristol.
	24	Chelmsford—Erection of Villas, &c.	Dr. Thresh	G. E. Clare, 66, Duke-street, Chelmsford.
	24	Epsom—Erection of Temporary Asylum Structures	London County Council	Clerk of Asylums Committee, 21, Whitehall-place, S.W.
	24	Horton, nr. Epsom—Alterations, &c., Manor House, &c.	London County Council	Clerk of Asylums Committee, 21, Whitehall-place, S.W.
	24	Swindon—Erection of Washing Baths	G. W. R. Medical Fund Soc. Committee	Offices of the G. W. R. Medical Fund Society, Swindon.
	25	Blackburn—Erection of Fire Escape Staircase	Guardians	J. Aspinall, Architect, Victoria-street, Blackburn.
	25	Bootle, Lancs.—Erection of Lodge	Corporation	Borough Engineer, Bootle, Lancs.
	25	Burnley—Electric Light Station Work	Lancs. and Yorks. Railway Co.	G. H. Pickles, Borough Surveyor, Town Hall, Burnley.
	25	Hoghton, Lancs.—Erection of Railway Station, &c.	Markets Committee	Engineer, Hunt's Bank, Manchester.
	25	Leeds—Erection of Basement of Market	Commissioners of H.M. Works	W. Hanstock, Architect, Branch-road, Batley.
	25	Winchester—Enlargement of Post Office	London County Council	E. B. Brett, H.M. Office of Works, 12, Whitehall-place, S.W.
	25	Bethnal Green, E.—Erection of Working-class Dwellings	Captain F. T. Verschoye	The Department, 17, Pall Mall, East, S.W.
	25	Londonderry—Erection of Villa Residence	Sanitary Committee	W. Barker, 3, Richmond-street, Londonderry.
	25	Manchester—68 Two-story Tenement Buildings, 13 Shops and a Lodging-house (Four Contracts).	Sanitary Committee	City Surveyor, Town Hall, Manchester.
	25	Manchester—26 Three-story Tenement Buildings and Two Shops.	Sanitary Committee	City Surveyor, Town Hall, Manchester.
	25	Milford, Armagh, Ireland—Cemetery Gate Lodge, &c.	Cemetery Committee	J. J. Phillips and Son, 61, Royal-avenue, Belfast.
	25	Llanwrst, Wales—Erection of School, &c.		H. Leather, Architect, Andrew's-bldgs., Queen-st., Cardiff.
	25	Londonderry—Erection of Shops, &c.		W. Barker, 3, Richmond-street, Londonderry.
	25	Mitcham, Surrey—Erection of Visitors' Room, &c.	Guardians of Holborn Union	C. E. Vaughan, 25, Lowerthorpe-street, Strand, W.C.
	26	Hastings—School Alterations	School Board	Elworthy and Son, Architects, London-road, St. Leonards.
	26	Ovenden, Yorks.—Erection of Two Semi-detached Villas	Directors of People's Palace	M. Hall, 20, Northgate, Halifax.
	26	Bridlington Quay—Erection of 11 Houses	Bromley Union Guardians	W. S. Walker, Architect, Central-ch., Bridlington Quay.
	27	Farnborough, Kent—Extension of Infirmary Buildings	Guardians	J. Ladds, 7, Doughty-street, Mecklenburgh-square, W.C.
	27	Stockport—Erection of Workhouse	Parks and Baths Committee	C. F. Johnson, Clerk, Union Offices, Shaw Heath, Stockport.
	29	Wolverhampton—Construction of Shelter	Trustees	J. W. Bradley, Borough Engineer, Wolverhampton.
	29	Pudsey—Erection of Sunday School	Billericay Rural District Council	Hodgson and Farrar, Architects, Bank Chambers, Pudsey.
	29	Great Barstead, Essex—Erection of Post and Rails, &c.	School Board	H. G. Clark, Surveyor, Wickford.
	31	East Ham, E.—Erection of School Buildings	London County Council	R. Curtis, 120, London Wall, Moorgate-street, London.
	31	London, S.W.—Erection of Two Refreshment Houses	County School Managers	Architect's Department, County Hall, Spring-gardens, S.W.
	31	Tregaron, Wales—Erection of School	Town Council	Ll. B. Price, Doldremon, Lampeter.
eb.	1	Southampton—Erection of Hospital	Grammar School Governors	Greenway and Smith, 21, Queen Anne's-gate, Westminster.
	1	Dudley—Erection of School, &c.	Rev. T. Taaffe, P.P.	Woodhouse and Willoughby, 100, King-street, Manchester.
	1	Tullyallen, near Mellifont, Ireland—Church	Admiralty	W. H. Byrne, 20, Suffolk-street, Dublin.
	1	Isle of Grain, Kent—13 Coastguard Dwelling-houses	Metropolitan Asylums Board	Director of Works Department, Northumberland-avenue, W.C.
	2	New Cross, S.E.—Structural Alterations at Hospital	Urban District Council	T. D. Mann, Clerk to Board, Norfolk House, Norfolk-street, Strand, W.C.
	3	Sandbach—Brick Tank at Pumping Station	Guardians of Festiniog Union	W. Wyatt, Engineer, Bryndwr, All Saints, Shrewsbury.
		Penrhyn-nidreath, Wales—Vagrant Wards, Boiler-house		W. W. Thomas, 15, Lord-street, Liverpool.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Feb. 9	Sunderland—Erection of Infirmary Buildings	Union Guardians	W. and T. R. Milburn, 20, Fawcett-street, Sunderland.
" 10	Shanghai, China—Supply of Portland Cement		Secretary of the French District, Shanghai.
" 10	London, N.—Erection of Infirmary	Guardians of St. Mary, Islington	W. Smith, 65, Chancery-lane, W.C.
No date.	Folkestone—Erection of Factory Chimney		R. Pope, Architect, Folkestone.
"	Harrogate—Alterations, &c., to Inn		H. E. and A. Bown, Architects, Harrogate.
"	Hereford—Erection of Three Villas		W. W. Robinson, 10, King-street, Hereford.
"	Kendal—Erection of Six Dwelling-houses	Millward, Hodgson, and others	J. Hutton, Architect, Kendal.
"	Leeds—Additions, &c., to Premises	J. Buckley and Sons	Ambler and Bowman, 9, Park-place, Leeds.
"	Liverpool—Pulling Down, &c., Premises		W. W. Thomas, 15, Lord-street, Liverpool.
"	Llanhilleth, Wales—Erection of Rectory		E. A. Johnson, Architect, Abergavenny.
"	Ramsgate—Altering Cottage		—Buckhouse, 15, Rising-street, Ramsgate.
"	Rugby—Erection of Inns	Northampton Brewery Co.	T. W. Willard, Architect, Rugby.
"	Rugby—Erection of Inn	Flowers and Sons Limited	T. W. Willard, Architect, Rugby.
"	Sheffield—Plastering Forty Houses		W. Frobisher, Sherland-lane, Attercliffe.
"	Weston-super-Mare—Rebuilding Pavillion	Pier Company	Price and Wooller, Waterloo-street, Weston-super-Mare.
"	Whitkirk—Erection of Villa	R. Goodhind	C. D. Swale, 98, Albion-street, Leeds.
"	Dover—Boiler House, &c.	Town Council	H. E. Stilgoe, C.E., Town Hall, Dover.
"	Elgin, N.B.—Warehouse at Distillery		C. C. Doig, Architect, Elgin, N.B.
"	Birmingham—Additions to Schools	School Board	Martin and Chamberland, 106, Colmore-row, Birmingham.
"	Stanley, Co. Durham—Erection of Hotel	Mrs. Chaytor	E. Bowman, 52, Westgate-road, Newcastle.
"	Lincoln—Erection of House		W. Mortimer and Sons, Architects, Lincoln.
"	Cromer—Additions, &c., to Houses	S. W. Jefferson	Watts and Co., Architects, Cromer.
"	Oldham—Fifteen Houses	Central Land, &c., Company	H. Cheetham, Architect, Oldham.
ENGINEERING—			
Jan. 24	Bedford—Electric Cables	Town Council	T. S. Porter, Town Clerk, Town Hall, Bedford.
" 24	Inverness—Widening Railway Lines (Two Contracts)	Highland Railway Co.	W. Roberts, Engineer, Company's Offices, Inverness.
" 24	West Hartlepool—Electric Light Work (Five Contracts)	Corporation	H. Simpson, Town Clerk, West Hartlepool.
" 25	Castlebar, Ireland—Erection of Gasholder	Gas Company Limited	J. Sheridan, Secretary, Castlebar, Co. Mayo, Ireland.
" 25	Lawrence Town, Ireland—Bridges	Great Northern Railway Co., Ireland	Engineer-in-Chief, Amiens-street Terminus, Dublin.
" 26	Burnley—Supply and Erection of Engines and Dynamos	Corporation	W. R. Wright, Town Hall, Burnley.
" 26	London, E.—Disinfecting Apparatus	Guardians of Poplar Union	—Gilloch, Superintendent of Works, High-st., Poplar, E.
" 27	Stockport—Electric Lighting Plant (Five Contracts)	Corporation	J. F. Shoolbred, 47, Victoria-street, London, S.W.
" 27	Wokingham, Berks.—Erection of Gasholder Tank	Gas Works Committee	H. E. Jones, Gasworks, Harford-street, Stepney, E.
" 28	Witham, Essex—Hire of Steam Roller	Urban District Council	W. B. Blood, Clerk, Witham, Essex.
" 31	Buenos Ayres, Argentina—Construction of Port		Legation of Argentine Republic, London.
" 31	Klipphaat, Cape of Good Hope—Railway	Corporation	Agent-General for Cape of Good Hope, 112, Victoria-st., S.W.
" 31	Southampton—Fire Engine and Two Fire Escapes	Town Council	G. B. Nalder, Town Clerk, Municipal Offices, Southampton.
Feb. 1	Dover—Supply of Engines	Corporation	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 1	Birkenhead—Two Steel Ferry Steamers	Corporation	Ferry Manager, Woodside, Birkenhead.
" 1	Swansea—River Dam, Tunnel, &c.	Corporation	G. H. Hill and Sons, 5, Victoria-street, Westminster.
" 2	Birkenhead—Widening Railway	Committee of L. & N. W. & G. W. R. Cos.	Joint Engineer, Woodside Station, Birkenhead.
" 2	Gainsborough—Pumping Machinery	Urban District Council	P. Griffith, 55, Parliament-street, Westminster.
" 10	Barton-on-Humber—Gasholder, &c.	Gas Company	W. H. Goy, Secretary, Barton Gas Co., Barton-on-Humber
FURNITURE AND FITTINGS—			
Feb. 14	Stratford, E.—Fittings and Furniture to Public Library	County Borough Council	F. C. Hillery, Town Clerk, Town Hall, West Ham, E.
IRON AND STEEL—			
Jan. 24	Hastings—Supply of Cast-iron Pipes, &c.	Corporation	P. H. Palmer, Waterworks Engineer, Town Hall, Hastings.
" 26	Worthing—Supply of Cast-iron Socket Pipes	Gas Company	W. F. Verrall, Secretary, Worthing Gas Company, Worthing.
" 26	London, E.C.—Railway Stores. (Eight Contracts)	East Indian Railway Company	A. P. Dunstan, Secretary, Nicholas-lane, E.C.
" 26	London, E.C.—Wheels, Axles, Carriage Under-frames	Madras Railway Company	J. Byrne, 81, New Broad-street, E.C.
" 27	Willenhall, Staffs.—Supply of Wrought-iron Fencing, &c.	Urban District Council	C. J. Jenkins, Surveyor, Council Office, Willenhall.
Feb. 2	Ryde, Isle of Wight—Supply of Cast-iron Pipes, &c.	Corporation	Borough Surveyor, Town Hall, Ryde, Isle of Wight.
No date.	Bradford—Supply of Safe	North Brierley Union Guardians	J. E. Helmsley, 4, Town Hall-street, Bradford.
PAINTING AND PLUMBING—			
Jan. 24	Bristol—Plumbing Work at School	School Board	La Trobe and Weston, 20, Clare-street, Bristol.
" 25	Withington, Manchester—Painting, &c., Nurses' Home	Guardians of Chorlton Union	Porter, Union Office, All Saints, Manchester.
" 31	London, S.E.—Painting and Repairs	London County Council	Architect's Department, County Hall, Spring Gardens, S.W.
Feb. 7	Manchester—Painting (Sixteen Contracts)	Lanes. and Yorks. Railway Co.	Engineer, Hunt's Bank, Manchester.
No date.	Whitehead, Belfast—Plumbing Work to Villa	D. J. Lannigan	T. Pentland, 35, High-street, Belfast.
ROADS—			
Jan. 22	London, W.—Supply of Ballast and Sand	Vestry of St. George, Hanover-square	—Livingstone, 1, Pimlico-road, S.W.
" 24	Beckenham—Quartzite and Guernsey Granite	Urban District Council	J. A. Angell, Council's Offices, Beckenham.
" 24	East Retford—Supply of Broken Granite, &c.	Rural District Council	T. Henry, Surveyor, Retford.
" 24	Salford—Flagging, Retaining Wall, &c.		Borough Engineer, Town Hall, Salford.
" 25	London, S.W.—Granite Setts, Wood Blocks, &c., &c.	Chelsea Vestry	T. W. E. Higgins, Surveyor, Town Hall, Chelsea, S.W.
" 25	Knaresborough—Street Works	Rural District Council	R. Annakin, 44, Station-parade, Harrogate.
" 25	Limerick—Supply of Paving Setts	Corporation	W. E. Corbett, 28, Glenworth-street, Limerick.
" 25	Willesden, N.W.—Supply of Road Materials, &c.	District Council	O. C. Robson, Public Offices, Dyne-road, Kilburn, N.W.
" 27	Middleton, Lancs.—Roadway, Sewers, &c.	Owners of Building Estate	Walton and Lee, 10, Mount-street, Grosvenor-square, W.
" 28	Horncastle, Lincs.—Broken Granite, Slag	Rural District Council	J. E. Chatterton, Clerk, Horncastle, Lincs.
" 29	Hoole, Chester—Street Works	Urban District Council	A. E. Caldecutt, 17, Newgate-street, Chester.
" 29	Norwich—Supply of Broken Granite	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 31	Inverness—Laying Carriageway with Wood Blocks		J. A. Mackenzie, Burgh Surveyor, Inverness.
Feb. 2	Litherland, Lancs.—Completing Passage	Urban District Council	W. B. Garton, Council's Surveyor, Sefton-road, Litherland.
No date.	Burslem, Staffs.—Forming, &c. Street		Chatterley-Whitfield Collieries Limited, Tunstall.
"	Cambridge—Roads, Bridges, Sewers, &c.	St. John's College	J. C. Jonas and Sons, Market-hill, Cambridge.
SANITARY—			
Jan. 24	Hendon—Pipe Sewer, Manholes, &c.	Urban District Council	S. S. Grimley, Public Offices, Hendon, N.W.
" 25	Lisbon—Sewerage and Drainage Works	Secretary of State	Commercial Department, Lisbon.
" 25	Lambeth, S.E.—Egg-shaped Brick Sewer, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 25	London, N.—Pipe Sewers	Tottenham Urban District Council	P. E. Murphy, Engineer, 712, High-road, Tottenham, N.
" 26	Middleton, Lancs.—Sewerage Works	Corporation	H. L. Hinnel, 41, Corporation-street, Manchester.
" 31	Macclesfield—Pipe Sewers	Rural District Council	J. Thorpe, 19, King Edward-street, Macclesfield.
" 31	Keighley—Pipe Sewers, &c.	Rural District Council	Barber, Hopkinson and Co., Craven Bank-chas., Keighley.
Feb. 1	King's Lynn—Pipe Sewers	Corporation	E. J. Silcock, Borough Engineer, King's Lynn.
" 1	High Holborn—Reconstruction of Sewer	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 1	Wandsworth, S.W.—Drainage Works, &c.	Board of Works	H. G. Hills, Clerk to Board, East Hill, Wandsworth, S.W.
" 1	Horncastle—"Ives" Precipitating Tank	Urban District Council	E. W. Ives, 20, Albert-street, Derby.
" 2	New Brompton, Kent—Construction of Drains, &c.	Gillingham Urban District Council	J. Taylor, Sons, & Santo Crimp, 27, St. George-st., Westminster.
" 16	Burnley—Pipe Sewers, Manholes, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
No date.	Tolcross, N.B.—Sewer	Lanark District Committee	W. H. Hill, 194, Ingram-street, Glasgow.
"	Ballachulish, Argyll—Drainage, &c.	Lorne District Committee	K. Macrae, District Surveyor, Oban.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 1	Rugby—Public Clock		Urban District Council.
" 7	Eastleigh—Plans of Public Offices		Urban District Council.
" 14	Barrow-in-Furness—Designs for Technical Schools	£52 10s., £21	Corporation.
" 15	Port Elizabeth, S. Africa—Designs for Library Building	£50, £20	Public Library Committee, Port Elizabeth.
Mar. 14	Berwick-on-Tweed—Plans of Police Station & Lock-up	£105, £52 10s.	Corporation.
No date.	Bishop Auckland—Hospital	£50, £25	Auckland, Shildon, and Willington Joint Hospital Board.



An Architectural Causerie.

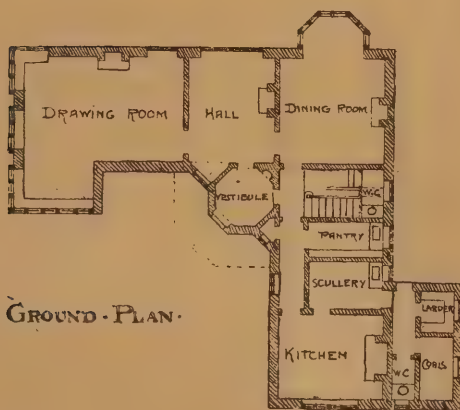
S. K. M. and Ministerial Mishaps.

S. K. M. and Ministerial Mishaps. THE TIMES is the elephant of the Daily Press Zoo, and an elephant must be solemn and judicial in all things, or his attractions will gravely diminish, and he may even cease to pass as an elephant at all. Mindful of its conspicuousness by merits of size and dead-weight, The Times undertakes in an oracular leader, in a recent issue, to direct and

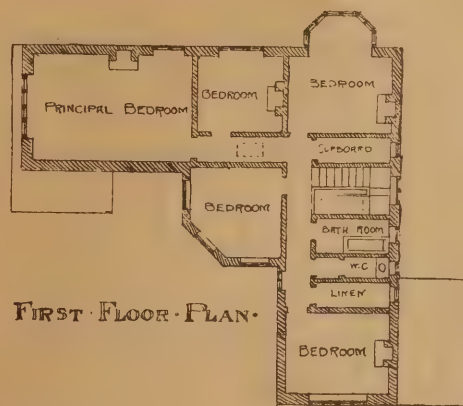
will remember the museum is an educational storehouse; and 'concludes' by telling the public and the Government what they want; and it seems what they want is, "not a fine building which will cost a fine sum, but a plain tasteful building, well arranged for the purpose for which it is intended."

A worthy building could be raised for much less than £400,000." To this one may reply with confidence that the whole of the professions of the Arts and Crafts, and all amateurs and those contingents of the public which are accustomed to give an appreciative consideration to the subject of Architecture, or who desire to see the national prestige and prosperity adequately expressed in the Architecture of national institutions, all and each pray and hope that the Office of Works will do its utmost to *forget* that the National Museum of Art is merely an educational storehouse; and (inasmuch as £400,000 was originally named as a fit and becoming price to pay for a building of such importance) that Treasury Authority for the expenditure of £400,000 will be granted. From the tone of *The Times'* leader it would seem as though the writer

guaranteed that the considerations of plan lighting, heating, ventilation, and the other practical needs that must be satisfied in a good museum, would find first attention from the competitors, as being first recommendation to the assessor; and that the cost of £400,000 was the conceded price which the various competitors were to economise and make best use of in their scheme for the completed museum. A costly elevation, therefore, signalises a simple and economical arrangement of the vital conditions of the design. It is, perhaps, unfair to expect very sound or minute architectural criticism in any daily paper, but there is a cause for just resentment that The Times should hasten to lend the weight of its utterance to secure for the long projected S.K.M. completion a place also in the great limbo of Ministerial mishaps. It has been characteristic of Government building projects throughout, with scarce an exception, that they have found birth in a spirit of adequacy, not to say magnificence, and in a full recognition of their symbolic value and their national importance, and, then, under a process of budget-lightening economy, one and all have fallen



GROUND-PLAN.



FIRST FLOOR PLAN.

A N Prentice - Archt.

A PROPOSED COUNTRY HOUSE. DESIGNED BY A. N. PRENTICE.

establish public opinion on the subject of the South Kensington Museum completion, and after opening with a "We have reason to believe, although no official announcement has been made," as it always has from birth upwards, it gravely prognosticates that the Government is about to pick up again its scheme for rebuilding the museum, from where it was dropped at the end of Lord Salisbury's last ministry. The Times then congratulates itself on the removal of the inflammable annexes, which it calls "tinder boxes." It then hopes that the Office of Works

considers that the six architects who were invited to compete in the S.K.M. Competition were concerned alone with their elevations; that the award was made to Mr. Aston Webb for the excellence of his elevation alone; and that this large sum is accounted for by the characteristic rich jewelled effect of Mr. Webb's design, and would have been reduced by the graver and broader employments of decoration in some of the other designs—Mr. Belcher's for instance. The public should understand, however, that the employment of Mr. Waterhouse as assessor on this occasion

away to effete and contemptible actualities. That Mr. Norman Shaw's building stands almost alone to dignify its purpose and its institution in the crowd of Government offices in and around Westminster, is due to the energetic action of Mr. Mathews, who was Home Secretary at the time when the project of New Scotland Yard was being absorbed into the starving process of official machinery, and snatched it out, and entrusted it to the best esteemed of our architects. It may be mentioned of the forthcoming War Office Buildings, if one may be allowed to

shelter one's responsibility behind the wise and cautious phraseology of *The Times*, that: "We have reason to believe, although no official announcement has yet been made in the matter," that three architects—a professor, a distinguished official, and one of the best known of our younger architects—have been deputed to select a firm with which, in their opinion, the commission to carry out the War Offices may most advantageously be placed. B. C.

Parish Life in England.

In the Nineteenth Century Magazine for January there is an interesting article by Dr. Jessop upon "Parish life in England before the Great Pillage."

He traces briefly the effect of the three successive conquests upon the original inhabitants of England, whom the Romans found "settled in defined areas." First came the Romans, then the Saxons and Angles, to be followed, after some "six centuries of consolidation," by the Norman Conquest. The interest of this article to the architect lies first in the importance attached to the development of village life in the Early and Middle Ages; and secondly, that this parochial life was the soil out of which English handicraft sprang. The Romans occupied the island about four centuries, and during that time many splendid roads were laid, new laws instituted and administered (*see Antiquary for January*), and they also paid special attention to textile manufactures, which seem, however, to have declined upon their withdrawal. The remains of their sojourn here are considerable, but it is probable that soon after the Normans took up their residence in England, the Roman influence, so far as the Arts and Crafts are concerned, rapidly dwindled. Traces of their influence is found, perhaps in that period of Architecture known as Roman; but from the end of the twelfth to about the beginning of the fifteenth century, the Arts and Crafts tell another tale—told by the commingling of Celt, Saxon, and Norman. The "six centuries of consolidation" by the Saxons and Angles witnessed but little development of parish life, but through the reign of William the Conqueror and onward the villages assumed a greater importance, and the handicrafts began to develop more rapidly. Dr. Jessop tells us "that there is no evidence of any clean sweep of old laws and old sentiments by the Romans, and that they left the village community, or any other organized social unit, as little distorted as possible; they left the people such self-government as they had attained to, superadding thereto some machinery for dealing out even justice as between man and man." From this note it may be inferred that when the Saxons, and at a later date the Normans, invaded the island, there were already a number of villages into which the conquerors infused the new spirit that germinated the village Architecture of the Middle Ages. The parish church, the object upon which the wealth of the village was lavished, was built, not by squire, nor by monk, but by the parishes. "The evidence on this point," says Dr. Jessop, "is abundant and positive, and is increasing year by year, that the work done upon the fabrics of our church, the painting of the lovely figures on the panels of the screens, the engraving of the monumental brasses, the stained glass in the windows—all this, up to about the sixteenth century, was executed by local craftsmen." It has only been possible to touch upon one or two points in the article, but readers who are interested in the fields from which sprang English Architecture should refer to this article in the Nineteenth Century Magazine for this month.

G. L. M.

ELECTIONS AT THE ROYAL ACADEMY.

At a general assembly of Academicians and Associates held to-day week at the Royal Academy, Mr. Edward J. Gregory, A.R.A., painter, and Mr. George Aitchison, A.R.A., architect, were elected Academicians. Mr. Lionel P. Smythe, painter, and Mr. H. H. La Thangue, painter, were elected Associates. Mr. E. J. Gregory has at last received the promotion which—had he chosen to exert himself beyond the point to which he has restricted his efforts—might have come to him any time during the past eight or ten years. But not since his lovely Scandinavia subjects, nearly twenty years ago has he set himself to put forth his full strength, although from time to time works of exquisite feeling and consummate artistry have come from his brush, both in oil and water colour. But not since his election as Associate, in 1883, has he produced a work so striking and so full of ability as the "Boulter's Lock," in last year's Academy—a picture which, born into the world after long travail, has now placed him

AMONG THE IMMORTALS.

The struggle was mainly between three Associates whose names "got on the blackboard," when Mr. Gregory received 19 votes, Mr. Seymour Lucas 11, and Mr. Aitchison 10. In the ballot between the two former 29 votes were cast for Mr. Gregory, as against 25 for Mr. Lucas. Mr. Aitchison, who became Associate in 1881, along with Mr. John Brett, is the President of the Royal Institute of British Architects, is the Professor of Architecture at the Royal Academy, the designer of Founders' Hall, and (what is, perhaps, best known, though not to his highest credit) Lord Leighton's house. As a decorator and a writer upon his Art, he is in the front rank, though he is apt to be considered, nowadays, "somewhat old-fashioned." With 25 and 16 votes respectively, his name and that of Mr. Seymour Lucas were inscribed on the blackboard; and when the ballot was proceeded with the result was a tie—with 27 votes apiece. In accordance with the rules, the President had to cast his vote, and he awarded it, according to tradition, to him who had been

WAITING THE LONGER.

and Mr. Aitchison was declared duly elected. Proceeding to the first of the elections for Associates, Mr. Lionel Smythe was the successful candidate. He is a half-brother of Mr. W. L. Wyllie, A.R.A., and has painted the coast of France for many years with a distinction and beauty that have not been lost among his artist admirers. Mr. La Thangue had received fifteen "scratches," and Mr. Smythe and Mr. Alfred East 13 each—a tie in the latter case needing to be worked off. Amid excitement 29 votes were cast for Mr. Smythe against 26 for his rival; and, in the final ballot, Mr. Smythe was successful with 28 votes over Mr. La Thangue by a majority of 1. Finally Mr. La Thangue was

ELECTED TO ASSOCIATE RANK.

In the second stage of this election, it was found that Mr. Alfred East and Sir George Reid—the accomplished President of the Royal Scottish Academy—had tied with 14 votes each, and this had first to be disposed of, when 29 were cast for Sir George, and 26 for Mr. East. The final ballot resulted in exactly the same figures as the previous election—Mr. La Thangue receiving 28 votes, and Sir George 27—a majority of one. In Mr. Lucas we have, doubtless, the next Academician to be elected from the figure-painters. Mr. Alfred East is now the chief of the landscape painters outside the Academy, and his summons is only a matter of time. Sir George Reid would be an ornament to any academy in the world; his superb portraits of the last two or three years having taken artists—and critics, too—by storm; while as a black-and-white man he is certainly one of the most accomplished and interesting in the country. Perhaps before a year is out these three artists will receive that academic attention which would, we are convinced, be warmly endorsed by the public.

THE CITY OF KASSALA.

IN a letter written from Kassala, the special correspondent of *The Times* describes the city, over which the Egyptian flag has just been rehoisted, as follows:—"The old city of Kassala can be described in a few words; the dervishes were here for some time, which signifies that but very little remains of the former buildings. Here as elsewhere in the last Egyptian provinces the followers of the Mahdi destroyed all they could, leaving behind them, of what was once a prosperous city of 40,000 inhabitants, only ruined walls and deserted jungle-overgrown streets, which are still strewn with the bones of the massacred citizens and garrison. The modern native town consists chiefly of straw *tokuls*; and there are but a few brick buildings, which have been erected by the Greek traders. In my last letter I spoke of the famous pilgrimage of Katmia, the mosque containing the shrine of the Morgani saint. It stands at the foot of the grand mountain Kassala el Luz, whose steep lower slopes, riven by gullies, where long grass and ebony trees find root, are crowned by stupendous barren granite rocks and precipices inaccessible to man. The Katmia is

A LARGE AND BEAUTIFUL BUILDING

of brick, which was designed by an able architect and cost a large sum. The graceful minaret still stands, but the Dervishes have hewn through the base of several of the columns supporting the edifice, so that the roof and many of the shapely arches within the cloistered mosque have fallen in. They have also torn the ornamental copper-work from the gates, windows, and elsewhere, not for any use that it might be to them, for it still lies broken and twisted on the ground, but out of sheer wantonness, as is the Dervish way. So now the Katmia stands, roofless, with floor overgrown with jungle, a picturesque ruin amid this wild scenery, its chambers haunted nightly by the jackals and hyenas. The wrecked tomb of the Morgani is now closed against the profane by a wooden door, and is yearly visited by a great number of pilgrims. Hard by the Katmia, amid what is now a waste of high halfa grass and bush, are to be seen the remains of many ruined houses. These were the villas of the wealthier citizens of Kassala, who here had pleasant gardens and shady groves, to which they used to repair during the summer heat. Of what was once Kassala but one building of any consequence remains whole. As one approaches this place the first object one sees, a conspicuous landmark rising above the bush-covered plain, is a lofty brick chimney, belonging to the cotton factory which was established here in the days of the Egyptians. The dervishes destroyed the machinery but spared the extensive building, which they converted into their Beit el Mal, or public store.

THE NEW ITALIAN FORT

now encloses the disused factory, whose capacious engine room and other chambers are used for the armoury, the officers' mess room, and other military purposes, while some of the boiler plates have been utilised in the construction of the fort drawbridge. This fort, erected by the Italians shortly after their capture of Kassala, could be held by a small force against any attack the Dervishes are capable of making. Its stout walls, about 11ft. in height, form a rectangle 630ft. long and 315ft. broad; they are surrounded by a deep moat and wire entanglements. There are at present six 9-centimetre and two 7-centimetre guns on the walls. The garrison (of native troops) is now small; but no fewer than eighteen Italian officers muster at the pleasant mess. Kassala fort commands a position of very great strategic importance. It stands immediately to the westward of the outermost of the parallel ranges which run from north to south through Erithrea and Abyssinia."

An extensive scheme of harbour improvement at Ostend, involving an outlay of over half a million sterling, will shortly be put into execution.

ROYAL ACADEMY.

NOTES ON THE STUDENTS' WORK.

THE works sent in for the prize competitions at the Royal Academy were on view last month. It has become the usual thing to say, year by year, that this exhibition is worse than ever before. This remark might apply, this year, with particular truth to the paintings submitted for the gold medal. So bad are these that, for the first time it is said, this prize has not been awarded.

The particularly low standard which everyone seems to have noticed the last few years may partly be accounted for, perhaps, by the fact that the Academy limited the age of admission to twenty-three years, which had the effect of keeping out many students of that age and over who had intended to enter the schools. The average age of the present

in November. The presence of so many immature and boyish performances is thus easily explained, without insisting *ad nauseum* on the lack of right system in the teaching.

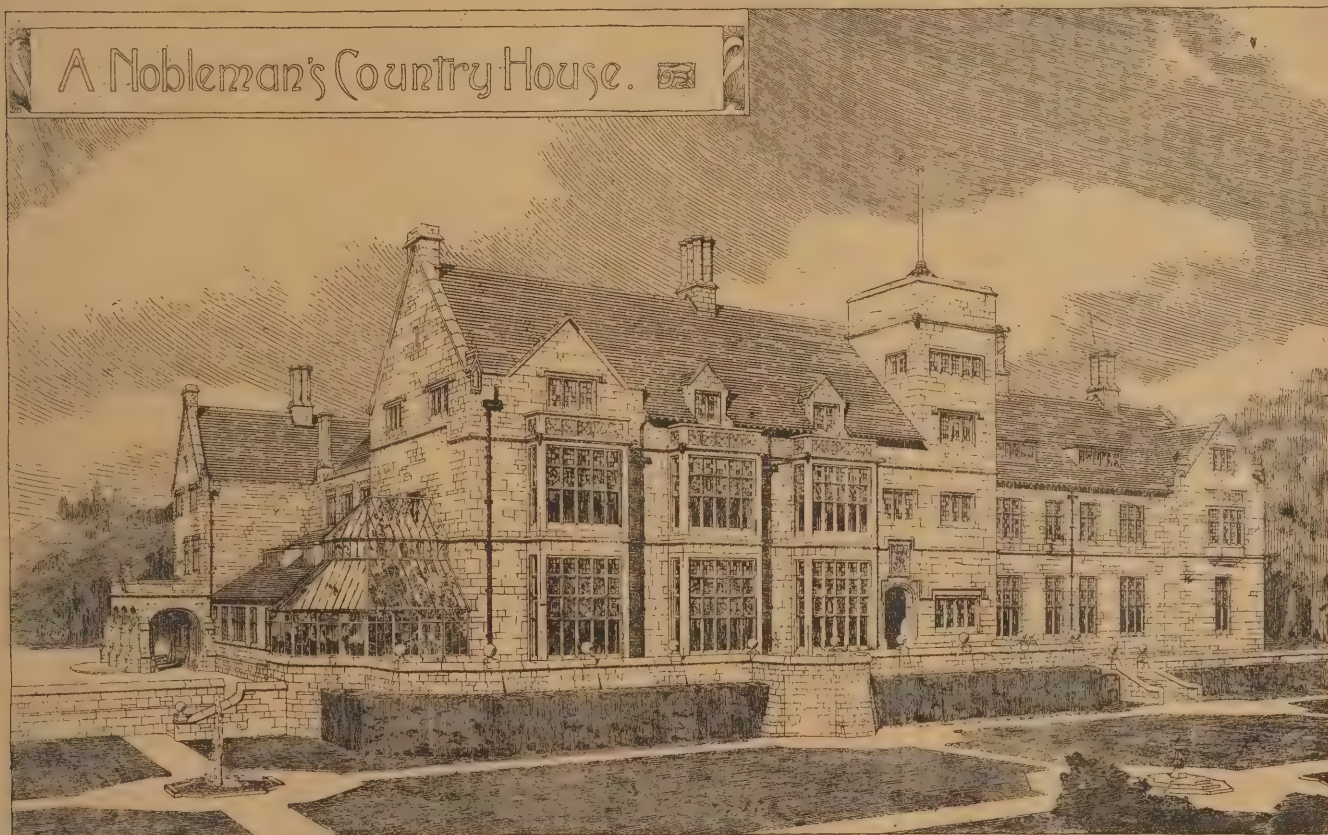
In the sculpture this year the average is, perhaps, not very high, though it is redeemed by the charming work of Mr. Turner, which rightly wins the gold medal. This group is well arranged and carried out in a most artistic manner, and is far ahead of the others. In the modelling from the life, however, Mr. Turner, who is placed first, is more nearly approached by Mr. Bertie Pegram, who wins the second place. There is little to choose between them, but Mr. Turner's work is, perhaps, richer and more masculine.

On coming to the designs submitted for the Gold Medal in Architecture, we find the subject is "A Nobleman's Country House." A few years ago the subject set for the English Travelling Studentship was a *Gentleman's Country House*; this year it is a *Nobleman's*. The Academy thus draws a distinction, and this should be remembered.

nobleman's country house there is nothing more to be said.

It is a noticeable thing that those designs which more nearly approach in general conception the idea of a nobleman's house are the most unsuccessful in realisation, as if the subject was too much for the designers, while those who are content with the ordinary country house of commerce have more nearly realized their ideals.

It is surely a most important thing that the student should be impressed with the vital necessity of giving every building its characteristic form and appearance. That, for instance, a nobleman's house is not just a gentleman's house writ large. Such an award as this tends to create a contrary impression, and, therefore, must be deplored; and moreover, it is a question whether it is altogether fair to those of the competitors who have endeavoured to faithfully interpret the programme. Judging from the designs, there is reason to suppose that many of those who have failed, relatively speaking, at the more



AT THE ROYAL ACADEMY. DESIGN BY LIONEL NEWMAN BARRETT.

student is therefore lower than it was, say, ten years ago, and the standard of work is, naturally, lower too.

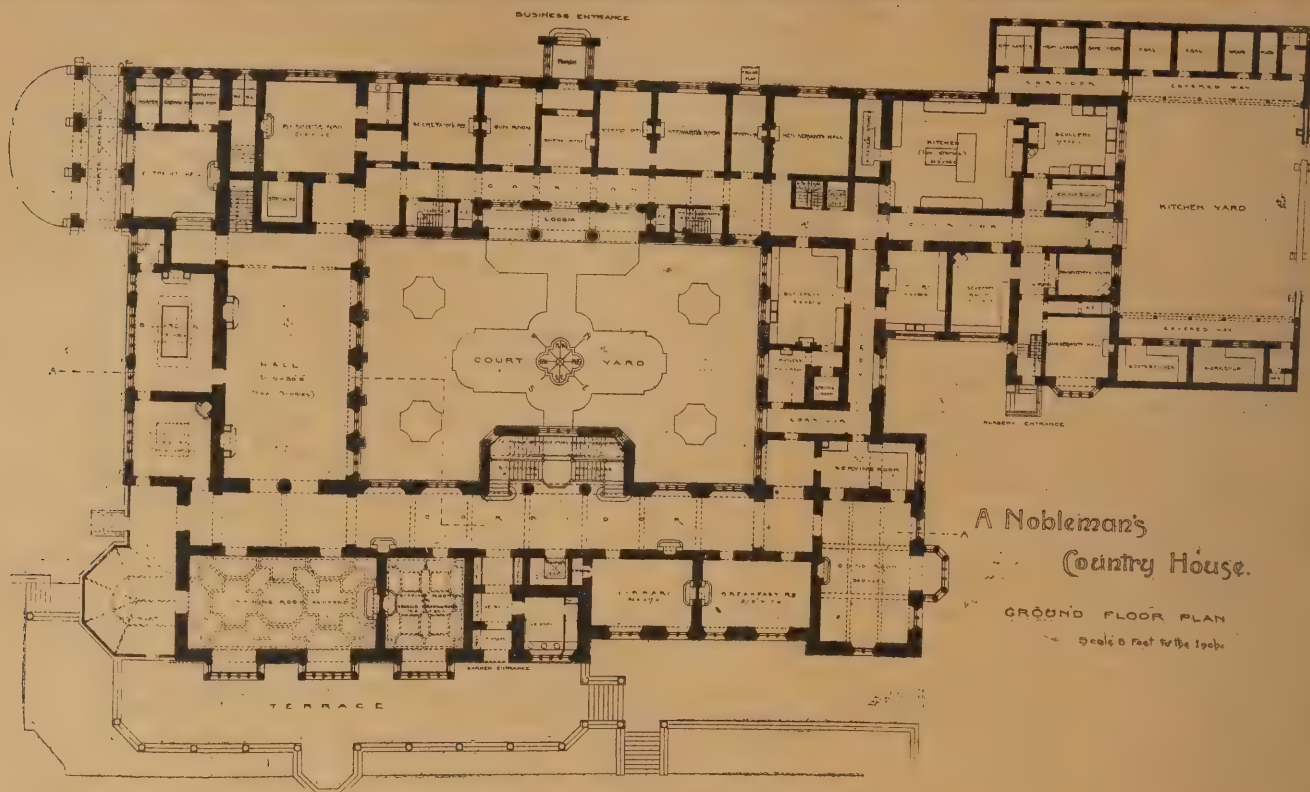
It is useless to shut our eyes to the fact that the great majority of the students of every branch of Art taught in the schools are attracted there principally by the prizes, which are substantial. It is hardly too much to say that if these prizes were abolished the schools would be practically empty, and might just as well be abolished too. The natural tendency on the part of many of the students was always to put off entering the schools as long as possible, so as to go there with more knowledge and stand a better chance for the prizes. The sudden application of this rule, without sufficient warning, had the effect of rendering ineligible many who were biding their time, to suddenly find themselves too old; but who, if admitted, would probably have contributed better work for the prizes than that here on view.

With regard to the painting in particular, it is understood that there is nothing to prevent the youngster just admitted from competing for the gold medal at once; that is, he may enter the schools in June and send in a picture

It is necessary to say at once that the prize design by Mr. Christie is not a nobleman's house, as distinct from a gentleman's; it is more that of the country squire or small landowner, and so does not properly fulfil the terms of the programme. It is of course a house that could be built in the country, and that might possibly be owned, and even at times occupied, by a nobleman; but it might equally well be owned and occupied by a merchant or well-to-do farmer. There is nothing about it that gives the particular character of a nobleman's house, neither has it anything like the required accommodation. How would it be possible to entertain here the large house parties, or, say, six to a dozen other noblemen with their wives and servants for the shooting or the races? There is only one bed and dressing-room suite in the house, besides that of the owner, whereas the proper accommodation would be more like half-a-dozen distinct suites, consisting of bed and two dressing rooms, bathroom, and w.c. complete—besides the single bedrooms and bachelors' wing. Judged as a country gentleman's house, there is something to be said both for and against this design, but as a

ambitious conception would have produced as complete a design as that of the winner if they had tried to do the same sort of thing. There is equally nothing in the winning design to lead one to think that its author would have been more successful than the others if he had attempted to design a nobleman's instead of a gentleman's house. When, in the opinion of the Academy, none of the designs which aim at a right interpretation of the subject are worthy of the prize, it might possibly be considered more fair to withhold the prize rather than to award it to one, however good in itself, which is not exactly what is asked for.

The £25 premium in the upper school is won by Mr. Lacy, with a design for a gateway tower to a college. This design is much as usual, with the exception of a variation of the tree of life growing out of the keystone of the arch, the branches of which have shields hanging to them. This hardly improves the design—it seems to rather spoil the proportions and force the window up to an unnecessary height—and, besides, is more adapted to a painting, where there are no stone joints to be considered. This design is illustrated by a drawing shaded up in a quite impossible



AT THE ROYAL ACADEMY. BY LIONEL N. BARRETT.

manner. No. 235 is more out of the common, but runs the risk of being labelled eccentric, which is perhaps more really inartistic than the commonplace—present fashion to the contrary notwithstanding. The awkward shape of the stairs, the square piers placed diagonally, instead of columns, are not reasonable.

The £10 premium in the lower school is won by Mr. Lee by a design for a lych gate. This, too, is not altogether free from the charge of eccentricity, but all the same it is perhaps the most interesting design in the Exhibition. The figures, surely, are out of place, and it is a question whether it would look so well in execution. Nos. 242, 243, and 244 are nice designs for college rooms.

The plan of an Art gallery for a large town is won by Mr. Hide. This is a simple, straightforward sort of plan, but the arrangement of the angles is weak. The central feature is surely too large in proportion to the rest of the plan, and considering how much space is occupied by this, more might have been made of the stairs; as it is, the whole of the traffic up and down has to pass through a 6ft. opening.

A. R. J.

THE award in the Skipton and District Cottage Hospital competition is as follows: (1) Mr. E. C. H. Maidman, Edinburgh; (2) Mr. W. F. Edwards, Birmingham. There were twenty-two competitors.

TOWARDS the end of this month St. George's Hall, Langham Place, will be on the lists at the Auction Mart. The leases to be sold include that of the large hall, which seats 850 persons, and has lately been redecorated at a cost of £1500; of 4, Langham Place; of 76, Mortimer Street, now occupied by the London Academy of Music; and of premises in Mark's Yard, Great Portland Street, which has been used as a stage entrance.

"NEW WALKS BY THE RHINE" is the title of a book by Percy Lindley, to be published shortly. Starting from the Rhine mouth at the Hook of Holland, "New Walks by the Rhine" will cover the picturesque wooded and rocky side valleys of Rhineland, from the Ahrthal, near Cologne, to the Neckarthal and the "Blue Alsatian Mountains" of the Vosges; and will include the districts of the Taunus, Eifel, Odenwald, Hunsrück, and the Palatinate. Mr. J. F. Weedon will supply the illustrations.

A WORLD-WIDE COMPETITION.

AN ARCHITECTURAL PROJECT—FROM AMERICA.

SAYS Mr. Geo. F. Parker, Consulate of the United States, in a letter to *The Times*:—"Some particulars which have recently reached me, concerning an architectural enterprise devised by the University of California, may not be without interest. It is the purpose of its projectors to ask for the submission of plans for the erection upon the grounds belonging to the University of California, at Berkeley, in that State, of what the preliminary prospectus, issued by the board of trustees, terms 'a city of learning.' The grounds of the University cover an area of 245 acres. The elevation above the sea-level at the lowest point is about 200ft., while the greatest elevation is over 900ft. Behind this lies a chain of hills rising another 1000ft. The land has an outlook over the bay and city of San Francisco, as well as over the neighbouring plains and mountains and the ocean. The trustees announce that it is their intention to treat the ground and buildings together, landscape gardening and Architecture forming one composition, which, it is hoped, will never need to be structurally changed in order to accommodate the future needs of the University. Upon this site it is proposed

TO ERECT AT LEAST 28 BUILDINGS,

all mutually related, and at the same time cut off as a whole from anything which might mar the effect of the picture, the assumption being that these will meet the needs of the University in the future, although it is suggested that the developments of science may impose new duties upon the institution, which will render necessary some alteration of this arrangement. All the buildings thus far erected are to be ignored, and the grounds are to be treated as a blank space, to be filled in according to the taste and the demands of the successful architect or architects. It is, of course, evident that, in order to carry out such a scheme as this, a large amount of money must be forthcoming. So the announcement is made by the trustees that \$5,000,000 (£1,000,000) have already been pledged, and that all the necessary funds will be forthcoming as fast as the work can be carried on.

But there are to be no definite limitations of cost, material, and style so far as the plans are concerned. All this is to be left to the unfettered discretion of the designer, who is asked to record his conception of an ideal home for a University, assuming time and resources to be unlimited. It is proposed that the plans shall be chosen by

COMPETITION OPEN TO ALL THE ARCHITECTS OF THE WORLD,

with an international jury of five men, who will have full charge of it and will award the prizes. It is hoped in this way to command the co-operation of the best architectural genius in the world. There will be two competitions, and ample prizes will be provided. Maps, casts, and photographs of the grounds will be placed at various accessible points in Europe and America for the convenience of architects who wish to compete. The programme has been prepared by Professor Gaudet, of the School of Fine Arts, of France. This was under consideration by the trustees when the prospectus was issued some weeks ago, and will soon be ready for distribution. Copies are to be obtained, when issued, from the various architectural societies in America and Europe, or upon application to the board of trustees at their office, 217, Sansome Street, San Francisco, California. I have no knowledge of the scheme other than that derived from the prospectus, but the relation which Mrs. Hearst bears to it is an earnest of its genuineness. She is known everywhere to be able, willing, and anxious to carry out large plans for the benefit of education on the Pacific coast. I venture, therefore, to hope that these meagre particulars may be of interest to your readers, and especially to architects."

A PROPOSAL is on foot to make an addition to Girton College, rendered necessary by the want of space. It is proposed to build a large new hall, with the necessary additions to the domestic service department (making use of the present hall as a much-needed adjunct to the library), a chapel or prayer-room, new lecture-rooms, and rooms for about fifty students, to which 100 more may be added hereafter as they are wanted. The present scheme is approximately estimated as likely to cost not less than £50,000.

THE ABBEYS AND CATHEDRALS OF SCOTLAND.

By P. MACGREGOR CHALMERS.

LECTURING before the Edinburgh Architectural Association, on the Abbeys and Cathedrals of Scotland, Mr. P. Macgregor Chalmers, President of the Glasgow Architectural Society, gave a survey of Mediæval Art in stone in Scotland, tracing its development from the earliest structures to the Reformation. The site, he said, of the first Christian church erected in stone was more likely to be found in the ruins lying to the west of Whithorn Cathedral than at the little chapel on the Isle of Whithorn. At the former site the plan indicated was in conformity with that adopted in early Romanesque structures, and there could be little doubt that the general character of the design of this first church was shown on the seal of Candida Casa. St. Regulus Church, at St. Andrews, described by most writers as having been built about sixteen years only before the great transeptal Cathedral of St. Andrews, alongside, was clearly of pre-Norman design. It was probably erected about the end of the tenth century. Designed originally as a church, with an apse and western tower, a new nave was added to the west, but still in pre-Norman times. This nave has disappeared, but it is shown on the ancient Seal of St. Andrews.

THE STATE OF ART IN EARLY TIMES

was illustrated in the manuscripts and sculptured crosses, the famous Ruthwell cross being specially described. Attention was also directed to the orientation of the early fabrics. The need for a careful record in every case was emphasised by reference to the Church of St. Mary on the Crag, at St. Andrews, and to the ancient tower incorporated with the more modern Cathedral at Dunblane. The character of the work of the twelfth century was illustrated from Durham Cathedral, its interesting parallel at Dunfermline Abbey, &c. The work of the end of this century was shown in its most perfect development in the nave of Judburgh Abbey. Mr. Chalmers also described his recent discovery of the north and south aisles of the choir erected at Glasgow by Bishop Joceline. The characteristics of thirteenth century work were principally described as found at Glasgow in the beautiful lower church and choir, and at Dunblane

Cathedral. At this point special reference was made to the brasses which have recently been placed on the floor of the choir of Dunblane Cathedral, to mark the supposed resting-place of Margaret Drummond and her two sisters. That memorials such as these have been permitted, and that such statements as are contained on these brasses should be approved of by the authorities in charge of the Cathedral, may well occasion surprise. That they are placed within sacred walls, on the floor of a church, increases the offence.

THE ART WORK OF THE FOURTEENTH CENTURY

In Scotland was still greatly misunderstood, the unwise deduction from the supposed excessive poverty of the country having served to lead students astray. Scotland would be bereft of some of its finest work if the work of the fourteenth century was swept away. Particular attention was directed to the development of window tracery during this century, although it was unfortunately true that, owing to its extreme delicacy, it was seldom found in a state of perfect preservation. The beautiful work executed at the end of the century at St. Andrews and Elgin was described, with the interesting example at Bothwell Church, now being restored. The opinion was here expressed that the new curvilinear tracery introduced into the windows of the church was of somewhat too late a character, the influence of French Art being more pronounced than was consistent with the date of the foundation. The Art of the fifteenth century was illustrated by the work at Lincluden, Rosslyn, Linlithgow, Melrose, Paisley, &c. The hope was expressed that a careful record was preserved for publication of the details of the original chancel arch at Linlithgow, discovered during the recent restoration. Melrose Abbey was described in detail, with special reference to the work of the mediæval architect, John Marow or Murray, whose autobiographical inscription is still preserved there. Many new and interesting facts were given regarding the history of Paisley Abbey, extracted from the lecturer's manuscript sketch prepared for publication. The current opinions on many points were shown to be unfounded, and the statement so confidently made, that the abbey was destroyed by the Reformers, was proved by the building itself to be but the fruit of ignorance and prejudice, since the abbey was in a more ruinous state in the year 1498 than it is at the present day.

A FEAT IN CONSTRUCTION.

THE New Brighton Tower is finished. It was in July, 1895, that the work of building this notable pile was commenced, and now the skeleton-like tower has become a familiar feature among the landmarks of the port of Liverpool. The New Brighton tower holds the unique distinction of being absolutely the highest spire in the whole of the United Kingdom. The distance from the ground to the bright copper ball planted on the top of the flagpole up in the sky is 567ft. The Eiffel Tower of Paris claims to be the highest structure of the world, reaching 984ft. above the earth, while the Cathedral of Cologne, in Germany, probably comes next, with its spire 511ft. high; but if Cologne Cathedral were reared at New Brighton its apex would still be more than 50ft. below the top of the Tower, and even the famous Blackpool Tower, with its 518ft. 9in., would be, so to speak, a head shorter than the New Brighton erection. Other English buildings of great height are the Salisbury Cathedral, 404ft.; St. Paul's, London, 365ft.; Norwich Cathedral, 315ft.; Lincoln Cathedral, 300ft.; Ely Cathedral, 270ft.; and Canterbury Cathedral, 235ft. It will be seen, therefore, that the New Brighton Tower is legitimately entitled to boast as the highest structure in the United Kingdom. In shape

THE TOWER IS OCTAGONAL,

standing on eight legs, the base being 150ft. across. It is constructed entirely of mild steel of British manufacture. Its weight in tons is 1760, while it is calculated as being sufficiently strong to withstand a pressure equal to one and a half times the force of the highest recorded gale in these latitudes. Messrs. Maxwell and Tuke, architects and engineers, of Manchester, designed the structure, which has been favourably reported upon by so eminent an authority as Sir Benjamin Baker. The actual work of construction has been in the hands of Messrs. Handyside, of Derby, with Mr. John Ashley, who had practical experience of the building of the Blackpool Tower, as clerk of the works. The lower portion of the great iron structure is hidden from view by a block of buildings, now approaching completion, and towering 90ft. from the ground. In this block, on separate floors, there will be a fully-equipped theatre for stage plays, with seating accommodation



A Nobleman's
Country House.

FIRST FLOOR PLAN

Scale 5 Feet to 1 Inch



AT THE ROYAL ACADEMY. BY LIONEL N. BARRETT.

in the shape of an amphitheatre for 3000 persons; above that a concert and ball room with a parquet floor laid upon springs, with promenade and outside balconies offering splendid views of the landscape and sea for miles around; and, still higher, the third floor is to be furnished as winter gardens, and will be covered in with a glass dome roof. In connection with all the halls mentioned, luxurious lounge and refreshment rooms are being provided. Visitors may reach the various floors in this building by any of four staircases leading from the two main entrances on the ground floor, or the ascent may be made in one of the four elevators provided for convenience, each of which will carry about a score of people at once. It is from

THE WINTER GARDENS AT THE TOP

of the main buildings that visitors will commence what may be described as the actual ascent of the tower. There is a staircase

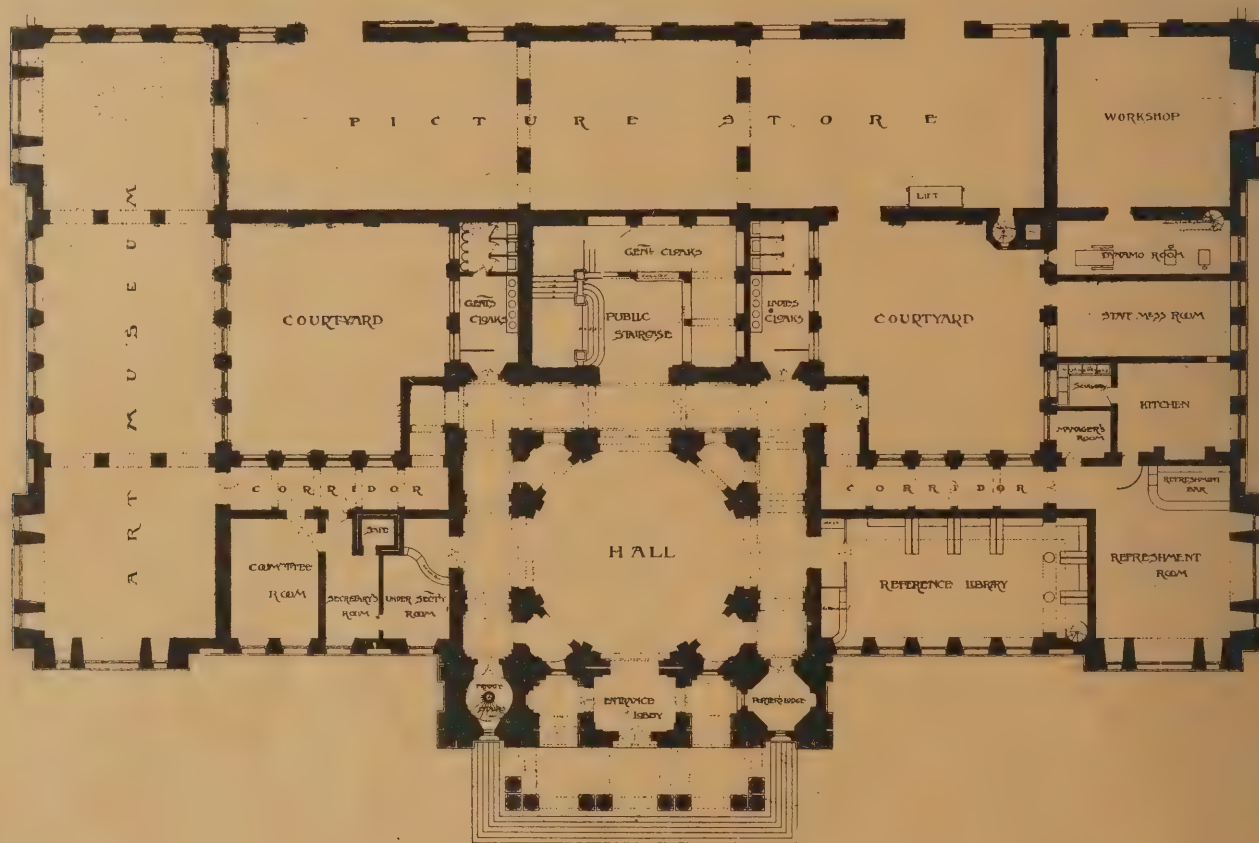
MEMORIAL TO LORD LEIGHTON.

THE Arts and Crafts Technical Institute, added to the South London Art Gallery, Peckham Road, Camberwell, by Mr. Passmore Edwards, as a memorial to Lord Leighton, was recently opened by Sir Edward Poynter, P.R.A. The gallery and the adjoining lecture-hall were opened some years ago by the Prince of Wales, but owing to enlargements and the building of a new frontage, the entire Institution has been practically remodelled. In 1892 Mr. Passmore Edwards made a gift of £3000 to build and furnish a library and lecture-hall in connection with the picture gallery. The building comprises four large studios, and also the workshops for craft work, which are placed in the basement. A large office is provided on the ground floor for the curator and art director. Retiring and cloak-rooms are supplied for the students, including a ladies'

is the builder. The cost is estimated at between £6000 and £7000.

SIR EDWARD POYNTER ON LEIGHTON'S WORK.

Sir Edward Poynter, in declaring the building open, said it was due to Lord Leighton's admirable energy that that gallery had become a permanent institution. The very exalted place which Lord Leighton held as a painter was, in view of the ceaseless energy which he displayed in other matters, as well as of his numerous brilliant accomplishments, apt to be overlooked, though it was by far the best and most important side of his many-sided nature. But the exhibition of his works held last winter in the Royal Academy established him beyond all exception in almost a unique position in this respect, for it positively militated against Lord Leighton's reputation as a painter that he should excel so greatly in other things. He was glad, therefore, that this fine building



AT THE ROYAL ACADEMY. PLAN OF AN-ART GALLERY FOR A LARGE TOWN. BY HORACE C. R. HIDE.

leading up inside, but this is devoted to the use of workmen only, and for visitors there are available four elevators of a more commodious pattern than the lifts in the main buildings. All the lifts will be worked by electrical power, the Tower Company having laid down at the far end of their grounds a station capable of supplying the whole area with electricity for working the necessary machinery for lighting and for cooking.

THE Sheffield Council has decided to purchase the undertaking of the Sheffield Electric Light and Power Co., at the price offered by the Company, namely, £220 of Corporation 2½ per cent. Stock for every £100 of capital actually spent by the Company.

SOME years ago a large number of Phœnician inscriptions were found in the island of Sumatra, and it is now supposed that they were made by the Phœnician fleet which Alexander the Great sent down the river Indus to regain the Persian Sea. The characters belong to the fourth century B.C., and some of them are similar to those on the monuments of Citium in Cyprus.

lunch-room on the mezzanine floor. A residence is furnished for the porter and caretaker. A fine north light is obtained at the rear by means of very large studio windows, and those on the top floor extend well into the roof. Models' rooms are provided to the main studios. The building is of Portland stone, with red brick facings, the spaces between the ground floor arcade being built with glazed red bricks. The style is Renaissance, richly treated with carvings, by Mr. W. Goscombe John, who also executed the sculptured pediment which contains life-size figures representing "Architecture," "Sculpture," and "Painting." The flock wall papers have been specially made to the tints supplied by Sir E. Burne-Jones and Sir Wyke Bayliss for the Art Gallery. The Art Galleries are at the rear of the Institute, and the grounds at the back have also been laid out as ornamental gardens from the plan of the architect, Mr. Maurice B. Adams. A thorough way is contrived below the ground floor level as an approach to the public gardens, and also for the purpose of bringing in works of art intended for exhibition in the picture galleries or for use in the technical institute. Mr. J. C. Richardson, of Peckham,

had been dedicated to the memory of so great a man. It could not but be of advantage that in this picture gallery, which was part of Mr. Passmore Edwards' munificent gift, some of Lord Leighton's work should from time to time be seen, or even be found permanently located there. There was a School of Art attached to the Institution, and he could conceive

NO BETTER EXAMPLE to set before students than the work of Leighton. Lord Leighton stood almost alone among English painters as an artist in the true sense of the word, that was, as having a complete mastery of his craft, and as opposed to that fatal amateur element which was so frequently seen in our artists and craftsmen. In this way he was an example not only to painters, but to all who practised the arts in any form. Schools of art might be of greater value if their proper purposes were kept in mind, and if it was remembered that a dilettante admiration for old art and enthusiastic talk about beauty of form and feeling for colour went for nothing, that dabbling in wood-carving or pottery did not make workmen, and even originality of design was only

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
January 26th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

MR. EDWARD GABRIEL (of Messrs. Edmeston and Gabriel) the assessor appointed by the Committee of the Westbury-on-Frym National Schools, Gloucestershire, in connection with the recent limited competition for new schools, has placed the design submitted by Mr. W. S. Bernard first, and that of Mr. Henry Hirst second in order of merit, and the selection has been confirmed by the committee.

A SCHEME for the alteration and improvement of Manchester Cathedral has been prepared. It is proposed to provide a covered approach to the Cathedral, to be used on State occasions by ecclesiastical and civil dignitaries and public bodies. It is proposed to provide a west or "Victoria" porch, and a niche has been prepared for the reception of a statue of Her Majesty, to which will be added, as funds accrue, figures of notabilities in Church and State. The total outlay is estimated at £6000.

THE late Mr. J. L. Pearson had the care of so many of the greatest and noblest ecclesiastical monuments that on his death lovers of Christian Art were much concerned at the selection of architects to fill his many important posts. Chiefest of these, after the custodianship of Westminster Abbey, was the position of architect to Truro Cathedral, which is not yet half finished. Mr. Pearson brought to bear on Truro Cathedral the full force of an architectural genius, which was only equalled by its reverence for the beautiful and for sacred things, with the result that he has now reared in the Cornish city a cathedral which in its unfinished state will bear comparison with some of the greatest architectural works of olden days. Truro Cathedral was, in fact, the greatest ecclesiastical architect's *magnum opus*, and it will delight lovers of the truest architecture and the friends of the deceased illustrious architect to learn that his son, Mr. F. L. Pearson, is, as we announced last week, to be entrusted with the completion of the great Cornish fane.

At a recent meeting of the St. Olave's (Southwark) Guardians, ten tenders, were opened for the erection of a new workhouse at Ladywell, Catford. The new building is to accommodate 800 persons, and the architect's estimate was £156,000. Messrs. Shillitoe, of Bury St. Edmunds, whose tender was £158,785, were the successful firm. A motion that the work should be confined to metropolitan firms was negatived, but a resolution was adopted requesting Messrs. Shillitoe to give consideration to the claims of London workmen, and especially to residents in St. Olave's Union.

FROM Sir Edward Poynter's report on behalf of the Committee of the British Fine Art section at the Brussels International Exhibition, it appears that British pictures took more awards in proportion to pictures exhibited than any other country; and the actual number of awards (20) was only two fewer than the Belgian awards, although the Belgian collection was far more extensive. The following is the list of awards:—*Medaille d'Honneur*.—L. Alma-Tadema, R.A. First Class Medals (Painting).—F. Dicksee, R.A.; H. Herkomer, R.A.; J. C. Hook, R.A.; E. J. Gregory, R.A.; Sir J. D. Linton, P.R.I.; J. W. Waterhouse, R.A.; J. Seymour Lucas, A.R.A.; and J. S. Sargent, R.A. First Class Medal (Sculpture).—E. Onslow Ford, R.A. Second Class Medals (Painting).—S. J. Solomon, A.R.A.; J. Lavery; D. Murray, A.R.A.; J. W. North, A.R.A.; W. Q. Orchardson, R.A.; Charles Green, R.I.; Mrs. Allingham, R.W.S.; W. W. Ouless, R.A.; J. Aumonier, R.I.; G. Clausen, A.R.A.; R. Macaulay Stevenson; (Sculpture) G. Frampton, A.R.A.; A. Drury; (Engraving) D. Y. Cameron; and (Architecture) the late J. L. Pearson, R.A.

A COLOSSAL hotel and pavilion is being erected on the Oval, Kennington, and is to be ready for use before the current season opens. The style is ornate, and the material terracotta tiles. The Oval belongs to the Duchy of Cornwall, and is surrounded by a varied class of property; some very old and some very new quaint styles of Architecture, interwoven with modern variations, with a gas-works to add coldness to the landscape.

BLOOMSBURY SQUARE is up in arms against a proposal to desecrate its historic precincts with a tramway. Such an innovation is enough to make the muddy statue of Charles James Fox, on the north side of the enclosure, shiver in his Roman toga and drop to the ground as an antiquated incumbrance the roll of Magna Charta which he holds in his hand. The scheme propounded by the London County Council is to extend the tramway line, at present ending in Theobald's Road, to Bury Street, which would involve the necessity of passing along the south side of the square, and to protest against that invasion a deputation of the inhabitants has waited on the St. Giles's District Board of Works, who ultimately decided unanimously to oppose it.

An artist in London is fastidious on the subject of ecclesiastical Art. He broaches the strange heresy that every church should be a sanctuary of truth. May I (says a correspondent) be daring enough to say I sympathise with him? In my native town there is a grand church window containing in separate painted panels the Twelve Apostles. The Twelve were all Jews, yet there is not one Jewish face among them; the Twelve were all poor men; yet they are attired in robes as flowing and as gorgeous as the most magnificent of Emperors is at his Coronation. Ecclesiastical Art makes even the fishermen Raphaellesque. They have the beards of Greek philosophers, the trailing trains which, in the case of Kings, are borne up by pages. In illustration of the miraculous draught of fishes, they are of such stature, that the greater miracle seems to be how one deeply laden boat could carry any one of them and live. Previous to the great fire in York Minster there was a fine window there (I have not seen the window since) where the Apostles were, in colours and corpulency, as splendid and as stumpy as the gaily-dressed and broad-shouldered Jacks on playing cards. Could the Apostles return to earth and see for themselves these extraordinary idealisations would they not be a little surprised?

THE Times, in returning, in a recent issue, to a pet subject—the completion of South Kensington Museum—says: "We have reason to believe, although no official announcement has yet been made in the matter, that another great step in connection with the museums of London has at last been decided upon. The agitation in favour of completing the buildings of the South Kensington Museum, which was last year so greatly strengthened by the

alarmist interim report of the Select Committee, has not been without its effect. We have so frequently urged the Government to take this matter in hand that we learn with much satisfaction that the decision to build has practically been taken. At present, as we have often pointed out, the South Kensington buildings are overcrowded, inconveniently arranged, and unsafe. Educationally, they are of much less use than they could easily be made, while, as the committee pointed out, the number of temporary and inflammable annexes in and about the main building constitute a most serious danger. Something has already been done by the removal of a few of these tinder-boxes, but this has only increased the overcrowding. From every point of view, in fact, the need for completing the building has long been obvious.

"We hope," continues the Times, "that the Office of Works, which will, of course, have the practical control of the matter, will remember that what it is engaged upon is the building of a museum, that is to say, of a storehouse, mainly educational in purpose, of a number of objects valuable for their beauty. It follows that the main object in view should be to build galleries in which these things can be preserved in safety and well seen. To this strictly practical end everything else ought to give way. There was, a few years ago, an architectural competition for a design of the new buildings, and it was understood that the plans of one of the most distinguished of our younger architects, Mr. Aston Webb, had been selected. Undoubtedly Mr. Webb's design would have worked out into a fine building, but what is wanted is not a fine building, which will cost a fine sum of money, but a plain, tasteful building, well-arranged for the purpose for which it is intended. That Mr. Webb could plan such an edifice there is no doubt whatever, but whether the final choice of the Government falls upon him or not, we are convinced that the necessary work could be done and a worthy building be raised for a very much smaller sum than the £400,000 that was mentioned when the matter was last under discussion."

At the final meeting of the Commission of Sewers a deputation from the Ward of Cripple-gate Fire Committee, headed by Alderman Sir Henry E. Knight, the chairman, attended and made the following suggestions for effecting improvements in the district affected by the recent fire: "(1) That the widening of Jewin Street affords the best basis for arrangements for new streets; (2) That after the widening of Jewin Street the site left on the north, now occupied by the premises forming the south side of Jewin Crescent, might with advantage be appropriated to the purposes of the central fire brigade station for London; (3) That, in addition to the widening of Jewin Street, a new street be formed from Jewin Street opposite the west corner of Jewin Crescent, to Wood Street facing London Wall; and (4) that Well Street and Hamsell Street should not be rebuilt, but a new street 60ft. wide be formed to take their place leading from Nicholl Square to Jewin Street, and continued northwards through Bradford Avenue to Redcross Street."

WHEN completed, the Terminus Hotel, which is now under construction in Marylebone for the Great Central Railway, will be one of the largest and finest hotels in the Metropolis. The style of the building, for the design of which Colonel Edis, the architect of the Constitutional Club and many other prominent buildings, is responsible, is a free treatment of Renaissance, and the materials chiefly used in the façade are red brick and terra-cotta. A handsome central clock tower is the main external feature. In front there are double entrances for foot passengers and vehicles from Marylebone Road, leading into a spacious covered courtyard. A large lounge entrance, with arcades on each side, will probably be greatly appreciated by visitors at the hotel, especially as it is intended to lay out the ground between the hotel and the road in ornamental gardens. Internally the arrange-

ments provide for a noble banqueting hall 150ft. long by 44ft. wide, and a coffee-room 120ft. long by 44ft. wide. Many of the newest features which have found favour in American hotels of a similar kind are being introduced, and the latest principles of fireproof construction are being followed.

A NEW red-brick building in Fleet Street strikes on the gaze of the passer-by who did not suspect its existence until the old front had been suddenly stripped away. This transformation is the beginning of the end for those houses on the south side of London's narrow and crowded thoroughfare, whose doom is involved in the "setting-back" improvement. If the much-needed operation is continued with equal despatch there will be little cause to complain of the temporary inconvenience.

PLANS have been approved by the authorities of Her Majesty's Woods and Forests Commission for rebuilding the south porch of the ancient abbey church of Sempringham, near Billingborough. This is to protect from the weather its famous door, with its beautiful iron scroll work, and the Norman arch with its exquisite chiselling, both of which date back to the 11th century. The proposed work is estimated to cost £190, and towards this sum the Lords of the Treasury have contributed £100. The living is in the gift of the Queen, and the new porch will form a memorial of her Diamond Reign.

THE Thames authorities have undertaken a great work—the construction of a new bridge between the Middlesex and Surrey shores at Vauxhall. The existing bridge is perfectly sound, and was made to last until Doomsday, as the Americans said of the buildings in England. It is, however, a most unpicturesque, and even rude, structure, and is to be replaced by one 8ft. wider than Westminster Bridge, so far our chef d'œuvre of trans-Thames highways. Old Vauxhall Bridge must have some ancient memories, "extensive and peculiar," like Sam Weller's knowledge of London, for it was, in the last century, the high road for one part of London to Cremorne and the other Gardens which flourished hereabouts well through the first half of the present century. There used to be a derisive saying, "as thin as a Vauxhall slice," in sarcastic commentary upon the dexterous attenuancy of the sandwiches served at the local gardens. With the bridge will disappear the last relic of the way that Londoners once enjoyed themselves.

A REMARKABLY interesting bit of old London has been unearthed during the process of demolishing some shops in Mitre Street, Aldgate. In taking down the back wall of the premises, the workmen came upon an arch and spandrel of the ancient priory of the Holy Trinity, or Christ Church. In mediæval times the priory was founded and endowed by the Empress Matilda, and until 1531 the monks lived in undisturbed possession. With the coming of Henry VIII., however, Christ Church shared the fate of the other monasteries, and the handsome building was subsequently converted into dwellings by Sir Robert Audley. When, in course of time, the splendid old structure was demolished to make way for necessary alterations in the neighbourhood, some of the sturdy stonework of the building was still left among the walls of the new premises. The arch that was brought to view recently is thought to have been a portion of the refectory, but some authorities hold that it formed part of the infirmary, as the refectory was not so far east. So sound and solid were the stone and rubble of the old arch, that as new premises were from time to time built on the site, the relic had been allowed to remain as a support. Very soon the builders will have hidden out the old arch behind the wall of some new shops, but unimpaired by centuries, the ancient span will once more be called upon to bear its share of weight, and to-day it looks so hale and so steady that when another century has passed, wondering workmen may look upon it, and, looking, find it still fit for duty.

IN opening the conference of Science and Art teachers, held at the Society of Arts Rooms recently, Mr. C. J. Addiscott (Daubeney-road Board School, Clapton), President of the Union, devoted the principal part of his address to criticism of the Science and Art Department. One of the great needs of England at the present time, he urged, was a sound, workable system of technical instruction, based upon Science and Art teaching, which itself must be based upon a solid foundation of primary instruction. Regarding science and art teaching as a tender plant that needs kindly culture, he held that this must be done by expert hands and not by amateurs who may tread it underfoot or occasionally tear it up to see how it is growing. Although he could not now discuss the question of foreign competition, he wished to emphasise the disastrous fact that with the country ripe for the adaptation of its educational machinery to its peculiar needs and conditions, yet the Science and Art Department, which is mainly responsible for an effective answer to the nation's demands, stands to-day, from the point of view of the great army of teachers working under its banner, and, he believed, from the point of view of the public also, in an atmosphere of suspicion and distrust, of dissatisfaction and discontent. Admitting the good work done in the early days by South Kensington in the training of teachers, the establishment of classes, and the encouragement given to museums and art galleries, Mr. Addiscott held that it had failed to march with the times, and had become an anachronism. No doubt progress had been made, but evidence on all hands showed that progress had not been in proportion to the general progress of the country in other directions. The fact was that since South Kensington lost the influence of the Prince Consort, it had become a thing of shreds and patches. It had become a harbour of refuge for many of the worn-out derelicts of the War Department who could not realise the requirements of modern times.

PRIVATE letters received by a correspondent of the New York Tribune give news of most important discoveries made by the German archaeologists excavating on the site of the ancient Priene in Asia Minor, opposite the Island of Samos. Years ago an English expedition excavated and studied the Temple of Athena, the chief sanctuary of the city, built at the order of Alexander the Great. The work was then abandoned, and meanwhile the ruins have been so thoroughly exploited and wasted by the neighbouring population that nothing is left but a confused heap of stones. In 1895 the work of exploring the ruins of the city was resumed, this time by Germans under the direction of the Berlin Museum, and at the expense of the Prussian Government. The architectural work has been placed in the hands of the young architect, Wilhelm Wilberg, a former student and assistant of Dr. Dorfeld. The work has now proceeded far enough to determine its extraordinary importance. A buried city, preserved almost in the completeness of Pompeii, is coming to light. Up to this time no Greek city has been excavated that gives any clue to the arrangement of streets, public squares, monuments, and public buildings, or to the Architecture of any considerable number of private houses.

HERE we find a city, to be sure, of the Hellenistic period, laid out with great regularity, with streets crossing at right angles, with shops, colonnades, market-places, theatres, a council house, and a great number of private houses preserved in such completeness as to display their general Architecture, distribution of space, use, decoration, and equipment. South of the great square of the temple alluded to above, and closely adjoining it, has been found the great market-place or agora of the city, which was surrounded on all four sides by broad colonnades, of which that on the north side was peculiarly noble and stately. Adjoining this at one end, and opening upon one corner of the agora, was found a small square building, constructed somewhat like a theatre, which was evidently the council-house of the city. It is

marvellously well preserved. Sixteen rows of seats are still in place. The walls, doors, windows, platforms, &c., are all preserved. One of the side walls ends in a massive arch, which, as being demonstrably a work of the fourth century B.C., must rank as the earliest, or at least one of the earliest, specimens of the arch in Greek construction. The whole building represents something entirely unique in the relics of Greek Architecture. There has also been found a small theatre, in which the stage structure, the skene, is still standing entire. Three doors open from it upon the orchestra, and the proscenium, with its rows of columns and the architrave above them, remains intact. No Greek theatre as yet discovered is so perfectly preserved as this, and in the future discussions of the "stage question" this structure is likely to assume a leading place.

A PROPOSAL having been made for the enlargement of Charlcombe Church, Bath, a correspondent writes: "A rumour is abroad that a scheme for the enlargement of the venerable church of Charlcombe is being promoted by a few parishioners. I sincerely hope that, for various reasons, the rumour is not true. It means a fatal blow to the historic traditions that lend such an unique interest to this church, which, after more than 700 years direct connection with Bath Abbey, retains a small portion of its Norman wall and much of its original form and pristine simplicity of character. The church, which is dedicated to St. Mary, consists of nave, chancel, and south porch. It was thoroughly repaired prior to the Reformation. The extreme length is about 51ft., and the width 21ft. The present structure is mostly Perpendicular, with some remains of earlier Norman work in the tower arch and chancel arch. There is also a north doorway of Norman character, which is now blocked up, and is susceptible of careful restoration. The porch also is of early character, and the south door is supposed to be a modern restoration of the old Norman door. The font is of a cylindrical bowl-shaped form, and Norman in character, with a carved band of lilies round it. Near the altar is a monument by Ford, of Bath, to Lady Barbara Montague, who died in the year 1766.

"THERE is a small bell tower at the west end 6ft. square, corbelled out from the wall. Originally it contained two bells, but only one now remains. The church was restored a few years ago, when the chancel walls, and part of the south wall of the nave were rebuilt, a new roof was put on the nave, and the area reseated. The circular pulpit is of stone. The windows, with but one exception, are filled with stained glass, illustrating subjects from the life and miracles of our Lord. There is also a carved stone reredos containing the symbols of the four evangelists, Agnus Dei, &c. Now I do not mean to say that all that has been done in the past is defensible; but in the main the church, in its walls and general iconography, retains much that is characteristic of a past age, and still commends itself to the loving care and protection of Bathonians as one of the most perfect relics we possess. I am unable to conceive any present emergency that would justify any dislocation of the walls of the dear little fabric under the plausible designation of enlarging the church. It would, indeed, be about as ruthless a piece of vandalism as even ignorant and unreflecting church spoilers could accomplish."

HEINRICH HEINE's latest monument has been finished at Laas, in the Austrian Tyrol, and conveyed to New York. No slight difficulties attended the transport from Laas, via Meran, to the wharf at Venice, whence the monument was shipped for America. The central figure of the Lorely alone weighs twenty-two tons, and the three personifications of Satire, Lyric Poetry, and World-weariness, grouped around the shell-shaped basin of the fountain, are of colossal size. The water of the Lorely spring is discharged from the throats of three dolphins. Heine himself appears only on the front of the

pedestal, his laurel-crowned bust being carved in flat relief, and presenting, it is said, a striking likeness of the poet. Professor Ernst Herter supplied the design and clay models of the entire work.

DURING the progress of work upon a new church which is being erected by Mr. E. C. Jordan, at Crindau, Newport, a remarkable discovery was made. The masons were sawing through a piece of Bath stone from Corsham quarries, near Bath, when they came upon a small cavity lined with spar. Such cavities are not unusual, but the surprise of the workmen can naturally be imagined when it was found that inside were six bees. Mr. C. E. Page, architect, who is in charge of the work for Messrs. Graham, Hitchcox and Co., carefully examined the stone, but there was no entrance to the cavity before the saw cut into it, the piece the mason was working upon and the large block from which it was cut being perfectly sound all round, and the presence of the bees is a mystery. They were alive, and two of them were still quite active when taken to a local newspaper office in a small box by Mr. Page. Being on the spot when the discovery was made, he at once captured the bees and secured the block of stone as a curiosity, and has handed over the stone and some of the bees to the local museum.

VERY unfavourable reports (says the Times Zurich correspondent) were in circulation some years ago about the condition of Thorwaldsen's famous monument, the Lion of Lucerne. A commission of experts was appointed to make a full report as to the damage which the grotto and monument had already suffered from frost, rain, and natural decay, and certain measures of repair and protection were then adopted. It is now, unfortunately, the case that, owing to the excessive rains of the past year, the monument has been much injured, and shows serious signs of cracking and crumbling away in many parts of its structure. The injury is chiefly due to the action of water trickling through the living rock out of which the lion is carved, and the experts have decided that the figure and its background must be completely isolated from the main body of sandstone cliff, and that an extensive draining and drying of the rocky surroundings must also be carried out, so that the progressive decay of the monument may be reduced to a minimum. These works are already in progress. Thorwaldsen's memorial to the memory of the Swiss guards, slain in defence of the Tuileries, on August 10th, 1792, was modelled in Rome, and the execution of the work was intrusted in 1821 to a Swiss artist, M. Lucas Ahorn, of Constance.

ONE of the attractions of the Fine Arts Section of the forthcoming Paris Exhibition will be the new statue of Victor Hugo, which M. Ernest Barrias, the eminent sculptor, has begun. It is not Victor Hugo in his later years that the sculptor will exhibit, but Victor Hugo young and bold, his face framed with long hair. The figure will be seated on a rock in a pensive mood, one hand supporting the chin. On the four sides of the plinth will be figures representing epic and lyrical poetry, the drama, and satire. Parisians are taking great interest in this statue, which, it is expected, will be the best that M. Barrias has executed.

It was expected that the frescoes of Chasserain, ornamenting the walls around the great staircase of the Cour des Comptes, on the Quai d'Orsay, could be easily taken off and preserved. This is, however, doubtful, but the Orleans railway directors are ready to give the Fine Arts Department every facility for trying to preserve the paintings, or, at least, part of them. If the Government, however, does not see its way to removing the frescoes, it is probable that the matter will be taken in hand by a private committee. A decision will have to be speedily come to on the subject, for the demolitions are continuing, and cannot be delayed, as the new terminus of the Orleans Company, which is to be raised on the site of the Cour des Comptes, must be completed within a given period.

OSBORNE HOUSE and the adjacent grounds, covering some 800 acres, was purchased by Her Majesty in 1844, but as the mansion was found to be totally inadequate to the requirements of the Queen, her household, and a rapidly increasing family, it was pulled down, and three months later Her Majesty and Prince Albert laid the first stone of the present building. The Prince himself planned and designed the house, which took six years to complete. Since that time, however, Osborne House and its environs have been considerably enlarged. A new wing, the wonderful Indian room (upon the decoration of which no less than £25,000 has been expended) and the private chapel, or prayer room, as it is called, have been added to the mansion itself, while the manor and farms of Barton, various cottages with their grounds, and much woodland, have increased Her Majesty's holding in the Isle of Wight to 5000 acres. The house of freestone is of an Italian style of Architecture, judiciously modified to the exigencies of an English climate. It is of pleasantly varied elevation, and has many wings and façades, which lend to the building an air of light picturesqueness. The Queen's entrance is less imposing than that at Windsor, and scarcely so picturesque as that at Balmoral. It lies in a sheltered nook, and before it is a great granite-edged circle filled with heather from the Scottish moors.

THE Coliseum at Chicago, which was burnt down recently, was one of the largest buildings in the world, covering five and a half acres, and had a seating capacity of 25,000. It was 700ft. long and 300ft. wide, and occupied the ground bounded by Sixty-second and Sixty-third Streets and Grace Avenue and the Illinois Central tracks, almost at the entrance to Jackson Park. The building had room for 100 yards straightaway course and a quarter-mile bicycle track, and the interior embraced 285,000 square feet. The trusses which supported the roof covered 215ft. at their base, and the roof was 100ft. from the ground. The building was supposed to be reasonably fire-proof, as it was mainly built of glass, iron, and steel. It cost £60,000 to erect, and was owned by the Chicago Exhibition Company. In the early part of 1896, when nearly completed, it was blown down by a heavy wind.

THE vacant space in the decorative scheme of the ornamentation of the famous west front of the Doge's Palace, in Vienna, has at last been filled up by a representation of the original statuary. This monument, which consisted of a figure of the Doge Gritti, together with a winged lion proper to St. Mark, the Patron Saint of Venice, was torn down and destroyed by the populace during the rioting which accompanied the fall of the Venetian Republic. For nearly 100 years the inhabitants of Venice have petitioned the various Governments to restore the lost statuary, and at last their perseverance has been rewarded. Two years ago the Italian Government opened a competition among native artists and offered a prize for the best reproduction of the missing monument. The prize was won and the work executed by the young Venetian sculptor, Urbano Bottasso. This colossal piece of alto-relievo sculpture, executed in Istrian marble, is about 11ft. long. It represents the traditional lion of St. Mark with his paw resting on the open Bible; opposite him kneels the Doge Gritti, draped in the Ducal mantle and holding an inscribed banderole in his hand. The work was to have been completed by February, 1899, but such was the zeal of the young sculptor that the monument was finished more than a year before the stipulated time. Recently the huge and heavy alto-relievo was raised to its place and fixed on the cornice over the balcony opening, in which the Doges of old used to appear before the populace at special times and seasons. The erection of the symbolic statue was to have been inaugurated recently, but a strong and general desire was expressed that the ceremony should be postponed until March 22 next, which will be the anniversary of, and coincide with, the jubilee

festivities which will be held in order to celebrate the Revolution which gave freedom to Venice. This piece of sculpture gives yet an added interest to the unique building which records the history and forms one of the chief glories of the City of the Sea.

WITH regard to the proposed restoration of the parish church of St. George's, Douglas, the vicar writes: The committee's architect, Mr. James Cowle, is preparing further plans. The old walls have been examined by one of the leading builders in the town, and he thoroughly agrees with the architect, that they are not worth keeping, and that nothing could be done to them to render them fit, architecturally or otherwise, for the thorough restoration of the internal part of the church. At present we must simply be content to wait; and, meanwhile, get all the information we can from those who are competent to give it, so that when the time comes for making a decision as to what must be done, we may do so with full knowledge.

ONE of the most extensive operations undertaken of late years by the London and North Western Railway Company is now in progress at Crewe. It will involve the outlay of upwards of half a million of money. On completion of the alterations, Crewe railway station will embrace 223 acres; its platforms will be upwards of 4000 lineal yards in extent, just double the present length; the area of the roofed-in portion will be 40,000 square yards, instead of 12,160 square yards; and its sidings will be augmented in number from 140 to 220, with a total length of thirty miles, in place of 15½ miles. By the additions to Crewe, without reckoning the extensive area of the locomotive works, the length of the station from north to south will be 2½ miles, forming a strip of about half a mile in breadth. Provision will have to be made for a great many other departments, and additional barrack accommodation for the enginemen and brakemen away from home has been arranged. As regards the station itself, there will not be any pulling-down, but a considerable addition. What will be provided will be three up and three down platforms, and four improved bays. Access to the platforms will be, as heretofore, by inclined corridors from the Nantwich road, which was widened by Mr. Footner in 1875, but there are to be extra bridges for passengers to cross from one side to the other at different parts of the station, and, needless to add, waiting and refreshment rooms are to be erected, together with such conveniences as hydraulic luggage lifts.

THE French Government has just concluded the purchase of the mansion in Knightsbridge which has for so many years sheltered the French Embassy. The price paid is a little over £25,000. It is a fine house, containing some very large rooms, and possesses a magnificent terrace overlooking Hyde Park. The French Embassy is one of the two great mansions which were built on either side of Albert Gate by the late Mr. Thomas Cubitt. They were so large that in the early forties they were humorously called "The Two Gibralters," because nobody believed that they ever could or would be "taken."

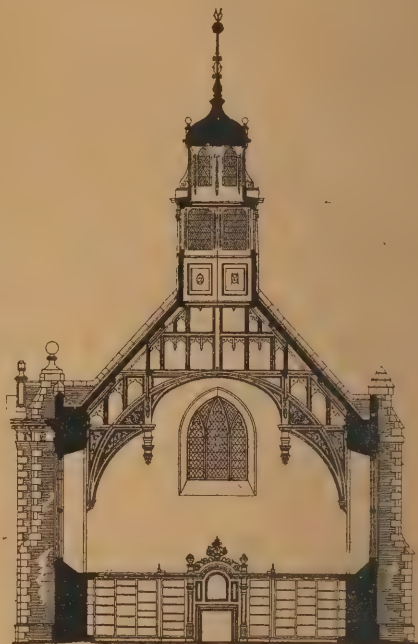
THE new aseptic room at the Temperance Hospital, Hampstead Road, is a comparatively small apartment, 14ft. by 11ft., and 13ft. high, but it is a model of lightness and cleanliness, with modulated warmth and scientific ventilation. Designed by Dr. Collins, surgeon of the hospital, and chairman of the London County Council, the ward is walled with enamelled glass tiles of very pale pink, floored with marble mosaic, lighted through a large single sheet of plate glass, which constitutes one-fifth of the west wall, and is warmed by a Teale grate below the window. The bed, furniture, fittings, and surgical apparatus are all in the newest style, glass being largely employed. The plans were prepared by Mr. Tregellen, and the building erected by Messrs. Holloway. The total cost is estimated at £500.

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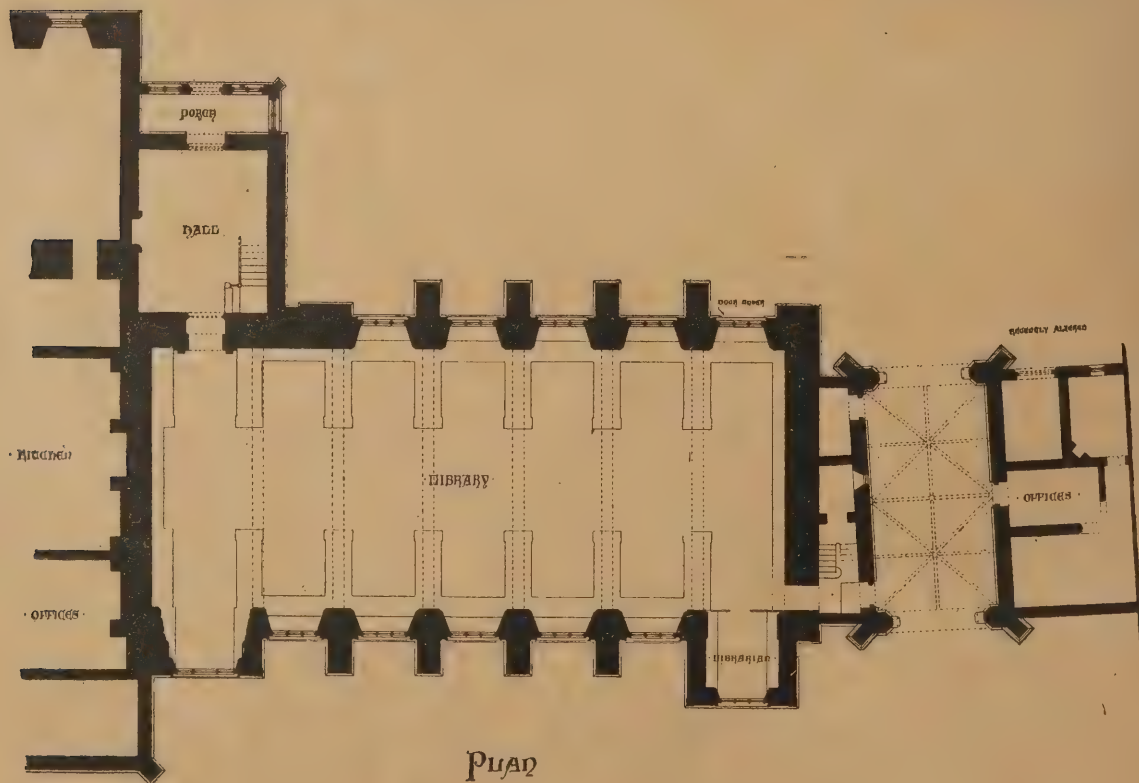
THE LIBRARY AT LAMBETH PALACE



ELEVATION OF RIVER FRONT



CROSS SECTION

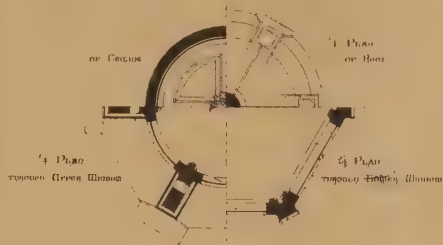


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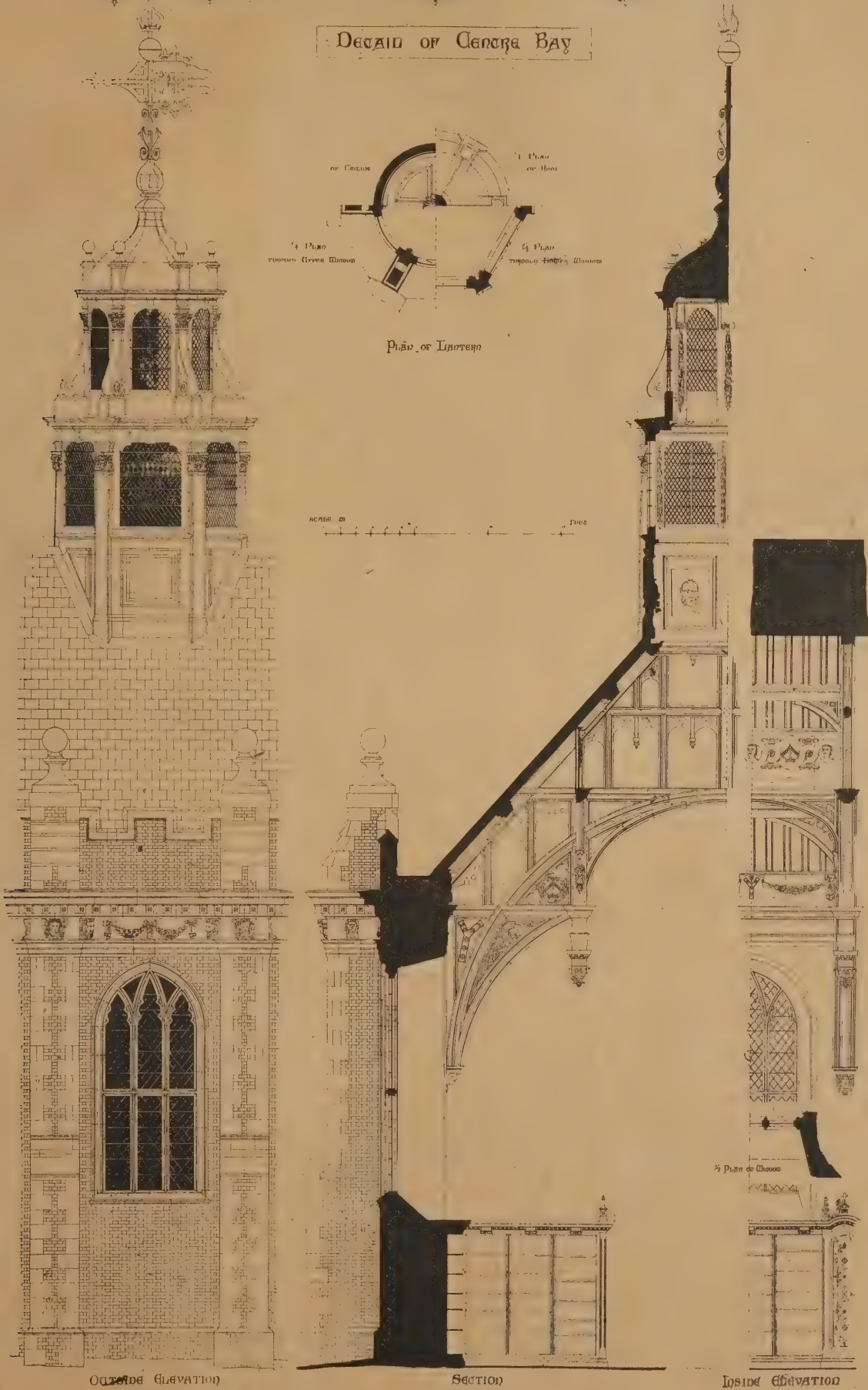


THE LIBRARY AT LAMBETH PALACE

DETAIL OF CENTRE BAY



РІДІВ ОГ ІДЕНТИН



OUTSIDE ELEVATION

Section

Inside Elevation

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GENIUS IN ARCHITECTURE.*

BY PROFESSOR GEORGE AITCHISON, R.A.

IT has been the custom for the President to say a few words to those who have just entered on the study of Architecture, and it is one of the most grateful tasks that he has to do, for he can look forward to those happy times when some of you aspirants may have conferred an inestimable boon on your country by designing monuments that will delight your contemporaries, and may be hereafter the admiration of the world. Speaking personally, it is the student's welfare that I have most at heart, not only because I see how many of my own youthful days were wasted from having no proper direction, but also because it is the one feature in all architectural epochs over which the elders can have the greatest influence. At present we know not how to produce genius, nor how to turn the public mind to desire and take an interest in

NOBLE ARCHITECTURE.

We have abolished symbolism, so that the bulk of buildings do not tell their tale, and the public are ignorant of what is being done for them. In the triumphal arches of the Romans, a goddess leaning on a wheel told the public that the Emperor made roads. If any statesman knew his business, every good sculptor in the kingdom would be fully employed in sculpturing buildings to tell the poor what was done for them; how they were taught, cured, looked after in their old age, and in their sickness and infirmities; and how law and order, peace and industry, were being taught to the savages who surround our Empire. It is in the interest of the students, and the Art, that I have proposed to omit from the examinations all that is not purely architectural, for this now shuts out those who have not received a good general schooling. We do not want to shut out a genius, not even a resolute and determined worker, because he has not learnt Greek, Latin, French, or German. I do not suppose Raphael had much schooling when he was taught to draw at three years old, and yet he not only became the greatest painter of modern times, but a sculptor, and an architect too. We are not surprised that a man with

SUCH INVENTIVE GENIUS AS RAPHAEL

should become skilful as an architectural designer when he had learnt the elements of Architecture; but it is surprising that he should have been one of the great constructors of his age, for you must recollect that Bramante, on his death-bed, recommended him to the post of head architect to St. Peter's. I do not suppose that Palladio had much schooling when he was but a mason's boy, nor our own Ware when he was a chimney sweep. I have devoted twenty years in trying to gain an insight into the causes of the great architectural epochs of Europe, and this is the conclusion I have come to. They seem to me to result from the set of the public mind towards enriching its age with monuments which embody the general aspirations. To accomplish this there must be hoarded wealth, noble desires, and architectural judgment. There must be, too, those endowed with the genius to express those aspirations architecturally, and highly skilled craftsmen to carry them out. As far as I can judge, genius is the power of invention, and is mostly accompanied by that high general capacity we call talent. This heavenly gift of genius and this general capacity are, however, only the raw material which has to be worked up. Genius has not only to learn what is necessary to express its conceptions, but to strive to do its best. Architecture is a structural Art; and therefore

THE ART OF CONSTRUCTION

is the most necessary thing to be known. The science of construction is statics; consequently the elements of statics must be known. A knowledge of statics, too, gives us a true ratio between every part of a structure,

and it gives the real shape that each part must take; if we were as clever as Nature, it would in all probability give us a beautiful shape. Unfortunately, we are far from being so clever, and consequently we have to learn by other means how a beautiful shape can be made out of the necessary shape. For this purpose we must study deceased Architecture and Nature. Every piece of deceased Architecture that we admire can be made to show us the æsthetic laws that govern it and produce its excellence, and these laws are as capable of being employed now as then. Every important portion of an ancient building may have the reason extorted from it as to why it pleased at its creation, and pleases us now; but from our greater knowledge, and from the necessity of using other materials, we may see that the proportions then used are not now applicable: for instance, a Greek Doric column showed the statical knowledge of its day, but it certainly does not now. Our materials and climate are different; the emotion now wanted is probably different, and the æsthetic sentiment of our day is probably different too; so we must get some of our

HINTS AND SOLUTIONS FROM NATURE'S WORKS.

There are, in the first place, human beings and animals, and there are thousands of different sorts of trees, of leaves, of grasses, of buds and fruits, which have beauty in different degrees, and we should learn from these how the beauty we want can be attained by various shapes and various proportions. Without the gifts of the mathematical and the artistic capacities no man should become an architect. But there is another requirement which we call planning—that is, how to make each room, hall, passage, and staircase answer its purpose, and how to pack them in the most convenient way. This may be called common planning; but there is artistic planning as well, which is the choice of forms which are not only appropriate for use, but are agreeable to the eye. I would by no means discourage anyone who loves Architecture and will study it from being an architect, for there are various degrees of power and excellence in architectural works, all of which make up

THE REALM OF ARCHITECTURE.

We do not despise the violet because it is not so grand or so lasting as the oak. The smallest cottage, if perfectly arranged, perfectly constructed, and perfectly proportioned, may be as delightful to contemplate as the mansion, the palace, the town hall, or the cathedral, though it does not require the same knowledge, the same daring, and the same invention. You must bear in mind that nothing great is reached in the fine arts without simplicity, but lovely simplicity is reached by great labour, and takes about ten times as long to arrive at as ornateness. "Oh! what a power has white simplicity!" Just now there is a great inclination to get effects by exaggeration, or by ways that involve little thought or trouble, such as by the distortion of the Orders, the sticking on of bits of rustication all over a building, or by putting water-gates into the attics of buildings. We must not forget the proverb that "the human mind is greedy of novelty," so much deplored by William Morris and by Mr. Ruskin, though

THE DESIRE FOR NOVELTY

is natural to man, and cannot be overlooked nor overcome; for each generation has not the same knowledge nor desires as the preceding one. In eating, the most delicious food soon palls, hence the proverb of "Nothing but eel-pie." Let us, instead of deploring the taste for novelty, echo Tennyson's words: "Let the great world spin for ever down the ringing grooves of change." True novelty is obtained by development. We see how Nature develops her types; and if we had lived in the palmy days of Greece we should have seen how the young clothopper was developed into grace and beauty by training. It is rather nauseous and rather ridiculous to hear so much talked of a new style, particularly when it is supposed that a clever man can invent it. The real new

style is to be attained by the improvements that come about by the altering of proportions through our greater knowledge of statics and the strength of materials, by making our buildings perfectly suitable to the new requirements of our age, by the suiting of our mouldings to the climate, by the greater cultivation of outline, and by a deeper knowledge of our own light and shade. The hideousness and ignobleness of our clothes render contemporary sculpture impossible. We have not even arrived at what the Italians call "handsome ugliness," and we have, when the present is represented, to confine ourselves to the brutes and to vegetation. Though I fear that what I am about to say may seem not a twice-told tale, but one that has been told many times in each generation, it cannot be too often impressed on the young. Men cannot always judge of what they are capable, so that if a student loves the Art sincerely, but appears to have no capacity for it, he cannot be sure of this; his capacity may require much cultivation, and if he woos the Art in season and out of season he may find he has it. Etty, the Royal Academician, who eventually painted flesh so admirably, was the butt of his fellow-students; but by resolutely pursuing his labours and never losing a moment he became excellent at his Art after some twenty or thirty years of unremitting study. Moderate your wants, and be contented with the poor pecuniary rewards your industry can attain. Your ambition should be to create

SOMETHING THAT WILL CHARM AND ELEVATE

your fellow-men through centuries. Those who look for money as the main thing, should be surveyors or valuers. Nor am I going to treat Architecture as a thing to be done in broken time, nor to look on it, as it is mostly looked on now, as a lower branch of the knowledge of the value of land and the price of bricks; nor as an antiquarian revival; but as a creation of the true and the beautiful as understood and felt in our own day. I mainly address myself to those who have the ambition to be poets in marble, stone, brick, iron, and wood, who desire to endow their country with a building that may rival the Parthenon, the Erechtheum, the Propylæum, or the Choragic Monument; the Pantheon of Rome, or with one that may vie with the interior of St. Sophia and St. Mark's, with the Scuola di San Marco, with the Cornaro-Spinelli Palace, or with the Town Hall of Brescia. Think of Milton, who got the price of waste-paper for his "Paradise Lost," but who "made himself an everlasting name." In some of the fine arts the mere exercise of them is its own reward. In the concord of sweet sounds this is certainly the case, and why should not

THE CREATION OF THE TRUE AND BEAUTIFUL IN ARCHITECTURE

be its own reward? There have been those great and pure souls that ask for nothing, but were contented to help and raise their fellows without even a thought of fame. Surely such exist among us? Cannot some of us be content to endow our country with a priceless treasure, with a monument that all mankind must admire and be thankful for, without an afterthought of fortune or fame? Do we not admire and revere the architect of the Pantheon at Rome, though his name is still unknown? It is only lately that the name of Formentone was known as the architect of the Town Hall of Brescia. Have we not Socrates; that soldier who perished unknown in the sentry box at Pompeii, and Marcus Aurelius as examples? and surely there must have been thousands who have only sought to do their duty, and there must be thousands still. We have at least an example of one great Englishman of perfect courage and perfect benevolence—Gordon. Let us hope that as great a soul may be found amongst our own students.

At the above meeting, on the proposition of Professor Roger Smith, the hearty congratulations of the R.I.B.A. were conveyed to Professor Aitchison on his election as a Royal Academician.

* An address delivered to the R.I.B.A. students, at the distribution of awards, on Monday night.

COMPOSITION IN REGARD TO PUBLIC BUILDINGS.*

By F. T. BAGGALLAY.

(Continued from page 520.)

FOR the sake of unity and concentration the main tower or other principal feature should be single, and not duplicated or further multiplied. If it is necessary to have more than one tower, for instance, or even broken-up roofs, still, some one thing should be large enough, and more especially high enough, to dominate the rest; and in such cases it is more than ever necessary to put it well in the middle. So much was said about the angles and end features of buildings in a paper that I had the honour of reading to the Architectural Association some years ago, that it would be but repetition to dwell much on that part of the subject now. When seen in perspective,

THE ANGLES OF A BUILDING

are as much the ends of the group as they are in elevation, though not the same angles, and some feature, or at any rate different treatment, is necessary there to mark the definite termination and completion of the composition; without something of the kind a reason for stopping at that particular point seems to be wanting. In any extensive building, rectangular in plan, the sides of which recede from the spectator when seen in perspective, giving long lines running away down towards the horizon, something more than a mere angle, a pier or quoins will generally be wanted at the ends of the composition, or a little within them, to break such lines and, as it were, lift them up. It is better for the general contour of the group if such features are not at, but within the actual ends. They may even be the middle features of short fronts. The great thing is that they must break the lines; they must rise above the skyline and their vertical lines ought to be higher than the cornice or finish of the walls generally, although the cornice may, and indeed should, as a rule, break round them. The necessity for carrying up

THE VERTICAL LINES

of these features is often overlooked with unfortunate results, as in the case of the buildings of the Louvre before referred to. Great care should, however, be taken that these secondary features do not compete with the main central one for attention. They should be smaller in every way, but especially they should be lower; and to get the best result they should be entirely different in design. The hen and chickens arrangement of a great dome and several little domes, or a great tower or spire and smaller echoes of it, is always less satisfactory than a group in which there is no suspicion of an attempt on the part of the secondary features to ape the principal one. There should also be a very restricted limit to the number of these secondary features; or at any rate neither the same design nor even the same general outline and proportions must be repeated too often, and never repeated in features which occupy different situations in the composition. Such repetition leads to both redundancy and the most poverty-stricken kind of monotony. In buildings like

THE GOTHIC CATHEDRALS,

in which the horizontal lines radiate from the centre, and consequently, when seen in perspective, run up instead of down, I do not think that any secondary features to break them are required. A little turret or group of buttresses to stop the composition seems sufficient. It may appear a rather daring thing to say, but the western towers of cathedrals in most cases seem to me a mistake. They are generally far too large in scale, and too similar in form to the main central tower, to group well with it; and they are at one extremity of the composition, in most views, balancing, if

one can call it balancing, nothing at the other end; which, indeed, where there is an apse, is sloping downwards in a very undignified way. The Romanesque architects, in this respect, managed better, generally getting towers or turrets at both ends. Perhaps, where there is an unusually long nave, something smaller than towers, not placed at the extreme end, but a little way from it—say, another transept—would have been an advantage; but Salisbury has not anything, and, even apart from its size, it is a far more pleasing composition than Lichfield, with its three spires. Western towers, with nothing large enough over the crossing to hold their own are a gigantic mistake, of which Cologne Cathedral is the typical example.

THE BREAKING UP OF SKY-LINES

is a thing that has often been recommended; but while it is, as before remarked, generally necessary to break a long one upwards or stop it at the end, to break it by a drop or cut through it is a thing to be avoided at almost any cost, and to do so for choice is to make a very serious mistake. It is still worse to break through a main cornice. These lines are perhaps the most important in a composition. They are wanted to hold it together, and give it unity and strength, and to cut through them is like cutting the cords of a bundle of sticks, and allowing it to fall to pieces. The Fine Art Museum at Lille has this fault in an astonishing degree for a building that is admirably designed in almost every other respect, and detailed with a skill that few of us could equal. It really looks as if it wanted a chain or cable round the top to prevent its falling apart. After solidity and unity,

ONE OF THE MOST IMPORTANT THINGS

to be seen to is character; and one of the chief elements in character is scale. Small parts tend to delicacy and prettiness, large ones to strength and grandeur. Small parts are supposed to make a building look large, and large parts to make it look small; but the influence of scale in that respect is probably greatly overrated. A man near, or any object the size of which is familiar—trees and surrounding buildings, and so on—give to the eye a just impression of scale which no exaggeration, in either direction, of the details of the building itself can do very much to remove. The attempt to give an impression of size by this means is supposed to be not only legitimate, but praiseworthy. But it is after all a species of deception, and one which really defeats its own ends, for there can be no object in trying to exaggerate the size of a building unless it be to produce an impression of grandeur. But small details necessarily suggest delicacy and thinness, qualities absolutely opposed to grandeur. If the smallness be more than is reasonable, or, rather, more than is customary, the structure even begins to look like the model of a larger one. It is of course possible to go too far, and to make details so large that they become coarse and vulgar. But for a public building, or any great architectural work, it is essential to its character that the parts shall be large enough to look exceptionally substantial, to suggest big piers, thick walls, a general massiveness, and, above all, largeness of idea and an avoidance of pettiness.

SUBSTANTIAL CONSTRUCTION

may be suggested without the use of ornamental details by setting the door and window frames back, and showing deep reveals, by the use of large material, by plenty of unbroken wall, and in other ways; but the simplest treatment calls for a little detail of some sort, the scale of which will help to give character, and, in public buildings, should be large. Particularly the projection or relief should be adequate, since it is that which most suggests the existence of plenty of thickness. Thus attached columns, besides being more delicately shaded, and, therefore, more beautiful, are also a far finer treatment than pilasters. Unfortunately, they are also more expensive, and more difficult to deal with, but that is by the way. Whatever the scale is, it is most important to use it consistently. One

used to be told that you must not have two scales side by side, but that is a mistake. There is no harm in having a nave arcade of large arches, and a wall or screen arcade of small ones, nor in using a large order on the walls, and a small one for window dressings. What is

INEXCUSABLE AND DESTRUCTIVE OF HARMONY

is to put a cornice, consisting of a number of small mouldings, on the top of a pier, the cap of which is composed of a few large ones, or to give the nave and screen arcades the same sized mouldings, or, to take a commoner case, put to the same building a block cornice composed of small mouldings, and a plinth of one big one. This is a matter which is not unfrequently overlooked in the sculpture and carved ornaments of a building, even when there is no fault to find with the architectural details. One sees light, delicate carving in low relief lost under large, heavy pediments and cornices, and, on the other hand, great coarse figures supporting or sprawling over mouldings which seem by contrast mere threads. Sculpture, and what is called architectural carving, are generally used to emphasise certain points, or, as it were, to punctuate the composition; and to a certain extent also to cover up awkward lines or spaces, which, by management of their own lines, they can be made to correct or obliterate. But although these uses are legitimate enough, it is most effective in broad masses, such as deep bands and friezes, and particularly, strange as it may seem, in the half lights under cornices, pediments, and the like. Perhaps because it breaks up, and gives richness to the shadows. Attempts to deal definitely with

THE LIGHT AND SHADE ON THE EXTERIOR

of a building meet with little encouragement from the weather in our climate, where, during so much of the time, it is difficult to see the difference between the two, unless the shadow is a very black one; and an architect who depended on them alone would only get his effects for a few hours occasionally. It is, however, a very important subject, and always worth considering. The broader lights and shadows of the masses and breaks in a composition, of course, change in shape as the earth moves round the sun, and at first sight it seems as if it would be too complicated a matter to try to do anything with them. Such is not, however, altogether the case; for a consideration of the fine effect produced by a broad shadow might often influence the depth of a break if the designer thought about it; and if he remembered how beautifully a round surface curves and softens the edges of a shadow cast upon it, he might sometimes be influenced in favour of such a form. It is also true that a lighted surface may be thrown almost entirely into shadow by breaking up the surface, provided the aspect be favourable. But it is in what may be called the incidental shadows that most may be done. Incidental shadows arise from making recesses in lighted surfaces, or in contriving projections from them. The most beautiful of such shadows are generally deep horizontal ones, such as that produced by the little galleries under the eaves of

ROMANESQUE BUILDINGS,

which answers to that under a classic cornice, but is stronger and beautifully enriched by the sparkle of light on the columns. Neither light nor shade, although they should be in broad masses, want to be in quite flat, unbroken ones. If there are a few windows or holes to give black spots, and a few projections, such as mouldings or balconies, in the lighted surface, and different depths of darkness in the shadow, both are richer, and appear stronger. The finest broken shadows are those formed by a covered colonnade, with a wall behind, giving delicately graduated shadows on the columns and a deep one on the wall; such a feature also suggests solidity. But, in criticising the main façade of the Louvre, Mr. Fergusson finds it vexes him, because he assumes (quite gratuitously) that the back wall does not run down to the ground, and he wants to know what it stands on. In interiors the management of light is one of the

* A paper read before the Architectural Association on Friday, Jan. 14.

most important means of obtaining good effect. Instead of trying, as we too often do, to merely get an equal flood of light everywhere, that is precisely what we should try to avoid. Enough, people say, is as good as a feast; and doctors tell us it is much better. And so it is with light; enough is one thing, an all pervading glare quite another. I do not advocate dark corners, which are

A DISGRACE TO ANY ARCHITECT, and only lead to the use of artificial light. There is no credit in doing our work well if we are going to ignore practical conditions. But a contrast of light and shade is as necessary inside as outside, and in this country we can do far more with it inside. A corridor equally lighted throughout its length is perfectly uninteresting, though the light be from the side or the top; but one which is crossed by a broad patch of light that increases the obscurity of the comparative shadow beyond is interesting at once. A definite light from one side, or from above, casts shadows, and gives form to objects, whereas an equal light all round casts no shadow, and destroys form and distance. The worst light is one directly in the spectator's eye; not only is it physically annoying, but it shows everything in equal shadow. The best light is often said to be a top light which throws all the upper part of the apartment into shade, and lights the floor and lower part of the walls. But light high up in the walls which lights the ceiling, and leaves the lower parts in comparative shadow, is even better. The now

COMMON PRACTICE

of putting electric lights close up to a modelled ceiling, throwing a grey shadow over the ceiling, but bathing everything else in a flood of light, is really a terrible arrangement. In internal effects generally we are at the present time, in our public buildings, immeasurably behind the architects of other ages, and even of our contemporaries in other countries. Any attempt, for instance, at a really fine staircase such as is usual in the public buildings of France or Germany, or at a spacious hall, almost always frightens people if it is made. And it is seldom made, because ninety-nine out of a hundred of our public buildings are the result of competitions in which architects are asked for an amount of accommodation which can only just be provided, if it can be provided at all for the cost. Although it is sometimes stated that corridors and staircases are to be ample, everyone knows that what would be considered the minimum in France would be regarded as sinful waste in England.

DECORATIVE PAINTING AND SCULPTURE are in much the same case. A proposal to employ an artist of eminence for such work, as is always done abroad, generally causes an architect to be looked upon as a candidate for Earlswood. If he names an adequate amount as the cost of getting such work properly done, he is often told that he does not know his business; that the local decorator or carver only charges so and so; and unless he is a very strong man, or a very subtle one, all his labour in composing his building will be often lost at the last moment by its being spoilt with vulgar ornament, to gratify the parsimonious instincts of a public body which, unfortunately, can quote the Government of the country as an example. I have only been able to touch on a few prominent points of my subject. It would be as easy to measure the universe with a two-foot rule as to put the Art of architectural composition into a few pages of foolscap. Such matters as emphasising vertical or horizontal lines, or emphasising or suppressing both, to give expression or character to a composition, the subject of proportions generally, and many other things will, I hope, be touched on by others.

PERSONALTY to the declared value of £310,644 13s. 9d. gross, and £309,483 8s. 4d. net, has been returned under the will of the late Sir Henry Doulton.

Six new sheds are being built at Dundee Harbour for the storage of jute. They are to be constructed of galvanised corrugated iron, with steel ribs, and the party walls will be of rubble masonry. Each shed will accommodate upwards of 5000 bales.

KEYSTONES.

MR. GEORGE ALLEN has arranged to publish a cheap edition of Ruskin's "Stones of Venice." EXTENSIVE structural alterations are to be made at the Liverpool Town Hall. The work is expected to occupy about two months.

THE restoration of Bishopsgate Street Chapel, one of the oldest Congregational churches in the City of London, has been completed.

THE Manchester City Council has adopted a recommendation to apply to the Local Government Board for a loan to carry out an extensive scheme of municipal lodging-houses.

THE Council of the Sanitary Institute has accepted an invitation from the Lord Mayor and City Council of Birmingham to hold its seventeenth congress and exhibition in that city in September next.

It is widely rumoured in the district that the decree has gone forth for the abandonment of Cyfarthfa Castle. The report is that in a very short time the place will be cleared of the scant furniture remaining, and boarded up and deserted.

EXTENSIVE additions and improvements have been made to the Guest Hospital building, Dudley, consisting of a new ward, capable of accommodating thirty-one patients, together with two special wards, an operating-room, &c. The total cost of the alterations was £4500.

THE London County Council will, it is anticipated, hold a special meeting early in February to consider whether or not to veto the proposal that the registration of title on the sale of land under the Land Transfer Act, 1897, should be made compulsory in the County of London.

CONSIDERABLE progress is being made with the extensive alterations that are being carried out at the Brighton Town Hall by Messrs. Field and Co. The rate offices and the east front are now practically finished, and the new police court is engaging attention at the present time.

AN inquiry has been held at Brighton as to the application made by the Town Council to the Local Government Board for sanction to borrow the sums of £5468 for the purposes of sewerage, £2480 in respect of a refuse destructor, and £312 for the Hollingdean storeyard.

STROMNESS Harbour Commissioners have accepted tenders for part of the pier extension authorised by the New Harbour Act of last year. The present work consists of an extension of the Warehouse Pier in greenheart timber and stone work, between the Warehouse and Murray's Pier, the total cost being about £1600.

STEYNING PARISH CHURCH, Sussex, has been under repair. The organ chamber has been re-roofed, the west and south sides of the tower have been pointed, and the windows on the south side have been replaced. The old Norman windows have been most carefully and skilfully pointed, besides other work. In the spring it is hoped to commence further work of repair.

THE latest report on the progress of the Jungfrau Railway shows that the work of construction is being well pushed forward. The principal tunnel has been carried to a distance of 164yds. by hand boring—chiefly done by Italian workmen—and the preliminaries for tracing out the great tunnel have been accomplished after some two years of labour. The rock is found to be excellently adapted for tunnelling, and experiments on the Jungfraujoch have proved that it is reached at a depth varying from 80ft. to 100ft. under the snow, instead of at 230ft., as was at first expected.

It has been definitely decided by the directors of the Vale of Glamorgan Railway Company to at once proceed to replace the sunken pillar and the several archways of the Porthkerry Viaduct affected by the recent subsidence. The remaining pillars will be supported during the progress of the work by wooden supports, held by iron stanchions, and the foundations will be both deepened and strengthened, and the pillar itself and the whole structure towards the Barry end be rendered absolutely secure from any recurrence of the present mishap.

Professional Items.

BOOTLE.—The new parochial hall adjoining St. Matthew's Church, Bootle, provides one large hall, capable of containing nearly 400 persons, which is lofty, well lighted, and ventilated. A spacious corridor connects the hall with the church. The staircase from the entrance hall leads to a balcony projected into the large hall, and to a large young men's room on the first floor, which is well adapted for club purposes, and will give the chief access to the large entertainment hall above. The subsidiary entrance is in communication with a kitchen on the ground floor. The plans were drawn out by the late Mr. Charles Aldridge. Mr. Ernest Aldridge has carried out the work under the superintendence of Messrs. Willink and Thicknesse, of 14, Castle Street, Liverpool. The contractors for the whole work are Messrs. George Woods and Son.

BOSTON.—The chapel in West Street, Boston, which was destroyed by fire on January 27th, 1897, has been rebuilt and renovated at a cost of about £2000. Mr. W. Greenfield's contract for the brickwork, &c., was £510, and that of Mr. Jessop for the woodwork, £900. Messrs. Hewitt, of Leicester, supplied the new organ at a cost of £250. The architects were Messrs. Howdill, of Leeds.

CARDIFF.—The completion and opening of one of the largest dry dock undertakings in England has just taken place at Cardiff. About two years ago the Cardiff Channel Dry Dock and Pontoon Company acquired the site, and the contract was entered into with the firm of contractors, Messrs. S. Pearson and Co., of Westminster, who are also building the Port Talbot Docks, to construct a graving dock commensurate in size with the growing needs of the port and the increasing dimensions of steamers now frequently coming to the Bristol Channel. This new dry dock is over 620ft. long and 107ft. wide, with a width of entrance of 62ft. 6in. It will have a sufficient depth of water on the sill to dock the largest of steamers on the lowest of neap tides. The entrance locks are closed in a manner new to Cardiff graving docks—i.e., by a sliding caisson, built by Messrs. Finch and Co., of Chepstow, which is worked by its own engines. By this means the dock can be opened or closed in two or three minutes. For the centre of the dock another caisson is being built by Messrs. Swan and Hunter, of Wallsend, the full width of the dock, for the purpose of dividing it into two parts. The placing of this centre caisson can be varied to suit the different length of ships in the dock, arrangements being made to shift the same in either of two positions at distances of 40ft. The dock, when full on the highest spring tide, will contain about 15,000,000 gallons of water, but the pumps by Messrs. Gwynne and Co., used in connection with Babcock and Wilcox patent water-tube boilers, are of such capacity that the whole of this vast quantity of water can be displaced in less than three hours.

DUNDEE.—Operations in connection with the new hotel to be erected at Whitehall Crescent have begun. The temporary buildings occupying a portion of the site have been demolished, as well as a tenement which abutted on the Gilfillan.—In all departments the work in connection with the new Post Office in Dundee is now well advanced. Externally the building is practically completed, the only work yet remaining to be done being part of the sculptural decorations; and internally, it is in the hands of joiners and plasterers, both of whom are making rapid progress. Among the most recently-finished sections is the sorting-room, a large, airy department, oblong in shape and lighted by four rows of roof lights and a row of windows in the north wall.

EAST GRINSTEAD.—The recently-opened sanatorium consists of an administrative block and two ward blocks. The administrative

block has a red brick front with stone quoins, and is weather tiled. The two ward blocks are plainly built with stock bricks with red brick facings, and have slate roofs. The floors are of wood blocks, and the windows are carried up to within six inches of the ceiling, and are made to open, thus permitting of an abundance of air. The ward blocks each consist of two wards and a nurses' duty room. Such necessities as a laundry and an ambulance house have also been provided, as well as Thresh's current steam disinfecter. The whole work has been carried out under the supervision of the surveyor, Mr. Ralph Wilds.

FOLLA RULE.—The Church of St. George, Folla Rule, Rothenorman, has undergone considerable alteration and improvement. The alterations just completed embrace the extension of the chancel to about double the original size, the addition of a north aisle, vestry, organ-chamber, heating chamber, &c., a new entrance-porch and bell-tower at the south-west corner of the building, and the entire renovation of the interior, including new floor and ceiling, re-seating throughout, the introduction of new heating apparatus and improved lighting and ventilation. The aisle is divided from the nave by four bays of semi-circular stone arches supported by stone pillars, circular and plain, and having splayed bases and moulded capitals. The entrance doorway has a semi-circular moulded arch, with label moulding over and small detached pillars with moulded caps and bases, and in the belfry stage of the tower are introduced four double-recessed, arch-headed, louvred openings, one on each side. The tower has a slated roof, terminating in a gilded weather-vane and finial about 70ft. above the ground level. The new ceiling of the nave is in the form of a flat segmental arch, relieved with plaster rib-mouldings, which divide the ceiling longitudinally into four bays corresponding with the bays formed by the aisle arches already referred to. The stone altar and the east window—the latter stained glass, by Messrs. Clayton and Bell, London—were presented to the church. The plans were prepared by Mr. Arthur Clyne, architect, Aberdeen. The contractors for the various departments were as follows:—Mason work, Mr. Lauder, Inverurie; carpenter work, Mr. Watt, do.; plaster work, Mr. Moir, do.; plumber and slater works, Mr. Pirie, Fyvie; painter and glazier work, Messrs. Donald and Sons, Aberdeen; heating apparatus, Messrs. Rae and Sons, Inverurie.

FORFAR.—The new Post Office, Forfar, has a frontage to Castle Street of about 40ft., and extends back about 116ft. On the street floor is the public office (20ft. by 20ft.), and behind it are the Postmaster's rooms and sorting office. The latter will be 42ft. long by 24ft. in breadth. At the end of the sorting office are the postmens' and clerks' retiring rooms, with necessary lavatory accommodation. At the rear of the building the telegraph lineman's room and battery room are situated, together with the barrow shed and basket store. On the first floor are the telegraph instrument room (20ft. by 16ft.), telephone room (12ft. by 11ft.), and boy messengers' room. Mr. David Adamson, Yeaman Street, Forfar, is the principal contractor.

GARSTON.—Two new schools—the Grassendale Victoria Schools (Church of England) and the Wesleyan Day and Sunday School—have just been built at Garston. The Church School is a two-story building, substantially built and fireproof, and affords accommodation for 450 scholars. The Wesleyan Schools are all on the ground floor, and afford accommodation for 339 scholars in three departments.

GLASGOW.—The memorial stone of the new Gorbals Free Church, Glasgow, has been laid. The new building is planned in a central position on the eastern side of Portland Street, South Side. Its erection on such a site—jammed in between two four-story tenements—presented unusual difficulties in plan and design. These have been dealt with by occupying the whole frontage block with the entrances, hall, and rooms, while the church is

placed behind these, extending to the lane and lighted on each side. The stonework is of red sandstone from Gatelawbridge quarries. The following are the principal contractors:—Mason, W. Gordon and Co.; wright, A. Meiklejohn; slater, A. Gibbons; plastering, Hamilton and Co.; iron and steel work, R. Stoffert; plumber, W. Anderson; gasfitter, Paterson and Co.; glazier, Meikle and Son; painter, J. L. Duncan. The estimated total cost is £6500. The architect is Mr. John B. Wilson, Glasgow.

HALIFAX.—The Watch Committee of the Halifax Corporation, subject to confirmation by the Town Council, have accepted the tenders required in the erection of the new police station, court house, &c., on the old infirmary site. The tenders amount altogether to about £12,600. The principal tenders accepted are those of Messrs. Charnock and Sons for the masons' and joiners' work, and Mr. T. Boocock for plumbing, &c. The only material alteration from the original plans is that the height of the lower rooms is to be 13ft. 6in., instead of 11ft. 6in. This increases the cost by about £600.

HECKMONDWIKE.—The new Board Schools, which have been erected in High Street, Heckmondwike, have cost about £14,000. The arrangements throughout are on the most modern principles, and include provision for an organised science school. The central hall is surrounded by sixteen class-rooms, in addition to which there are physical and chemical laboratories, cookery and manual instruction rooms, &c. Adjoining the asphalted playground are a caretaker's house and new offices for the Board.

KEIGHLEY.—Messrs. W. and J. B. Bailey, architects, have submitted to the hospital committee plans for the erection of new hospital premises for Keighley and district, and, subject to a few minor modifications, they have been approved. The new premises will be connected with the old by corridors. In the centre will be the new administrative block, three stories in height, and providing rooms for a resident surgeon, a dispensary, a day room, staff room, casualty room, waiting room, office, two nurses' rooms, matron's room, and bedrooms sufficient for twenty-nine persons. At the rear of this will be a building consisting of a large kitchen, scullery, store-room, sewing room, nurses' dining room, and servants' hall. To the south of the administrative block will be a two-story building devoted almost exclusively to ward accommodation, and which will furnish space for forty-four beds. The cost of the scheme, including land, is estimated at from £16,000 to £17,000.

KINGSWOOD.—The Jubilee Clock Tower Committee having decided to make various alterations in the plan for the memorial of the longest reign, a new design has been prepared by the architect, Mr. J. Mackay. It reduces slightly the height of the tower, and it provides that the three dials shall be 5ft. 6in. in width, instead of 3ft. 6in. as first proposed. The tower will be open at the base, so that pedestrians may walk under it; it will be constructed of best brick, with stone facings, and will have an ornamental roof.

LEEDS.—An improvement is about to be made at Ventnor Street Methodist New Connection Sunday school, Leeds. It has been found necessary to take down the existing one-story school, and erect on the site a larger and more commodious building. The main schoolroom, 55ft. by 33ft., will be on the ground floor, and give accommodation for 300. The upper floor will contain six conveniently arranged class-rooms, and a preaching room, 34ft. by 16ft. A wide stone staircase will lead from the ground floor entrance corridor up to the class-rooms. The buildings are to be of brick, with stone dressings. The approximate cost is £1000. The plans have been prepared by Mr. W. S. Braithwaite, architect, 6, South Parade, Leeds.

LIVERPOOL.—The Liverpool Select Vestry has received the special report of the committee appointed to consider the hospital accommodation for the sick and infirm. The report contained the suggestion that, in view of the early utilisation of the Highfield estate, the following general instructions for the guidance of the architects to be consulted should be approved:—“(1) That accommodation should be provided, in the first instance, for 480 patients; (2) that this accommodation should consist of one-storied wards, each containing thirty beds, these wards to be arranged in pairs, so that each pair of wards can be conveniently superintended at night by one nurse; (3) separate bath and closet accommodation to be provided for each ward, and in connection with each pair of wards there should be a patients' sitting-room or kitchen and a linen, &c. store; (4) a nurses' home affording accommodation for superintendent and assistant, thirty-five nurses, and such servants as may be required for the work of the home; (5) in connection with the nurses' home, but separated from it, that the inmates will not necessarily be brought together, accommodation for twenty ward maids or servants to be provided; (6) home or quarters for a resident medical officer; (7) general kitchen and stores, these to be so placed as to be most easily accessible for purposes of service to all parts of the institution; (8) office and receiving rooms; (9) laundry accommodation need not be provided; (10) heating and hot-water arrangements to be specially reported upon by the architects consulted; (11) the whole of the above provision to be concentrated as much as possible, consistently with plenty of space and airing ground to the inmates, leaving available the residue of the land for the accommodation of other classes of paupers. At the same time, the character of the design should be such as to allow of a future extension being made (especially in providing additional wards and in the enlargement of the nurses' and the servants' home), should they be at any time required, without interfering with the general plan of the hospital. Your committee further recommend that competitive designs for such an infirmary as will meet the requirements herein specified be asked for from Mr. E. Kirby and Mr. W. E. Willink, and that a consideration of 50 guineas should be made to each of those gentlemen in respect thereof, such fee, however, not being payable in case either of them should eventually be selected to carry out the work.”—The report was adopted.

LONGTON.—A Local Government Board enquiry has been held respecting an application by the Town Council for sanction to borrow £20,000 for gasworks purposes, and £4075 for street improvements. It was explained by the town clerk that the first-named sum was required in order to extend the gasworks and to put them in a thoroughly efficient state of repair. In regard to the sum of £4075, it was stated that this was required for the purchase of properties for the widening of streets.

LYTHAM.—The foundation-stone of the extensions to the Institute, to form the permanent Jubilee memorial, has been laid. Close upon £1000 has been raised towards the £1500 required to do the work. Mr. George Myers, Lytham, is the contractor, and Mr. Grimble the architect.

PERTH.—For the last nine months the School Board has had under consideration plans for the extension of the Southern District School. Four schemes have been before the Board. The first was estimated to cost £3811, and gives 343 additional places. The second scheme was estimated to cost £2574, and provided 301 additional places. Under the third scheme 311 new places were got at an expenditure of £1777, while the fourth scheme was estimated to cost £1976, and gave 313 new places. Scheme number one, which has been adopted, provides for six new class-rooms, including a new cookery class-room and lavatories, teachers' retiring rooms, and well-lighted central halls.

Under Discussion.

THE WINTER SESSION.

OLD ARCHITECTURE IN LIVERPOOL.

In a recent lecture at Birkenhead, on "Old Architecture in Liverpool," Professor Fred M. Simpson pleaded for the introduction of more artistic construction and ornamentation into modern buildings. He illustrated his remarks with limelight views of Italian palaces, and showed many pictures of eighteenth century houses in Duke Street, Great George Square, and Kent Square, Liverpool, declaring that the latter was one of the best squares in the city. He said houses in those days looked at each other with dignity, and did not shout and jeer across the street at each other, as did so many modern buildings. Dealing with iron-work, he showed views of the handsome gates at Wavertree Hall.

THE TREATMENT OF ARCHITECTURAL PERSPECTIVES.

A general meeting of The Architectural Association of Ireland was held in the Grosvenor Hotel, Dublin. The president delivered a most interesting lecture on the artistic treatment of architectural perspective. He illustrated his remarks by reference to original drawings by Messrs. J. Raffles Davison, C. W. English, J. Coleman, and himself, lent by various architects. The lecturer also showed some etchings, pointing out the error into which many craftsmen fell, that of imitating the methods of the etcher. He also laid stress on the almost invariable neglect of tone in architectural drawing, whereby much work, otherwise of considerable merit, was spoilt.

"SOME POINTS IN PRACTICE."

Before the Glasgow Architectural Association Mr. J. Kennedy Hunter, of Ayr, read a paper on "Some Points in Practice"—the President, Mr. Wm. Tait Conner, in the chair. The lecturer spoke of the relations of the architect to the client, the contractor, and to his fellow architects. He favoured a fixed fee rather than a percentage, though an architect had no option but to grant a certificate to a contractor for work done, less the usual percentage. He objected to architects' guarantees in competitions, preferring an estimate by a skilled measurer, concluding by cautioning the members against accepting responsibility for the clerk of works, who was the client's servant. Mr. W. J. Anderson opened the discussion. Mr. W. F. McGibbon agreed that good architects deserved the standard percentage, but thought the fact that some got half or quarter of that was scandalous.

SANITARY ENGINEERING IN BUILDINGS.

At the monthly meeting of the Sheffield Society of Architects and Surveyors, Mr. W. C. Fenton delivered a lecture on "Sanitary Engineering applied to Buildings." He urged the importance of architects and surveyors carrying out the whole of the sanitary engineering details in connection with buildings and the development of estates. He then mentioned the progress in works of sanitary engineering which had taken place in, and for the benefit of, the inhabitants of Sheffield. The High Street improvement was instanced as a case of sanitary progress, which also afforded architects an opportunity of beautifying the appearance of the town, and in connection with the Crofts improvement, the hope was expressed that the Corporation would give architects an opportunity of dealing with the rebuilding of this extensive area. By the possession of the water supply by the city much needed improvements had been made possible in the construction of w.c.'s and various sanitary fittings, which had also had the salutary effect of reducing the objections formerly raised against them. Mr. Fenton alluded to the unfairness of some drain tests, and said that well laid drains, with good joints, to be subjected to a weight of water

pressure exceeding 2ft. The difficulties experienced by local authorities, architects, and owners, with reference to the burning question of "combined drainage," was dealt with by the lecturer, who had had special opportunities—as previously a Corporation official of long experience—of observing and meeting them. The present system of arranging drainage affected by this question was not satisfactory from a sanitary point of view. The construction of house drainage, size and gradients of pipes, form of inspection chamber, and the materials to be used for same, were described and discussed. The system of "drainage by deflection" was referred to, and its advantages and disadvantages shown. The different varieties of "traps" were described, and the best forms recommended. Some towns were untrapping their drains, and Leeds was referred to in connection with this matter. The proper arrangement of inlets and outlets for the purification and ventilation of the drains was also noted, and their construction explained. Drain pipes and their joints, with proper tests to be employed, were described, and difficulties in connection therewith met.

GLASGOW CATHEDRAL.

The members of the Edinburgh Architectural Association visited Glasgow Cathedral last Saturday. The visit took place on the invitation of Mr. T. L. Watson, who asked the members of the Association to join others interested in a visit to the Cathedral, with the special object of examining the lower church, which was artificially lighted for the occasion. The vaulting of the lower church and choir is in five stages, differing in design and date, and each introducing a different type of vaulting rib. They are as follows:—(1) The south-western compartment of the lower church, A mouldings, end of the twelfth or beginning of the thirteenth century. (2) North and south aisles of lower church, B mouldings, 1230 to 1240. (3) Aisles and chapels of choir or upper church, B mouldings and C mouldings, 1240 to 1250. (4) Middle compartment of lower church, C mouldings and D mouldings, 1250 to 1260. (5) Western stairs to lower church, and the whole or portions of the eastern aisle and chapels, E mouldings, 1260 to 1300.—Mr. T. L. Watson was the leader.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the business meeting of the Royal Institute of British Architects, held on Monday week, the following Associates attending for the first time since their election were formally admitted: Messrs. Percy William Meredith, James Henry Coram, and Ernest William Marshall.—The Chairman announced that Mr. David Ross had been reinstated as Fellow, and Mr. Walter Albert Williams as Associate of the Royal Institute.—The following candidates for membership were elected by show of hands:—As Fellow: Arthur Alderson France, F.S.I. (Leeds). As Hon. Corr. Members: Leopold Eidlitz (New York), Victor Dumortier, President of the Société Centrale of Belgium.—Mr. William Woodward having, in accordance with notice, put certain questions to the Chair respecting the disposition of the guests at the festival dinner on the 2nd ult., the invitations issued to the Press on the occasion, and as to the report in the Journal of speeches made at the function; further, as to on whose authority the plan submitted to the Select Committee on the Government Offices (Appropriation of Sites) by certain members of the Institute was described as "The Institute Plan," replies thereto were given by the Chairman, Hon. Secretary, and Secretary, respectively. The list of awards, which was published in our last issue, was read.

A FINE new post office is to be erected at Preston shortly.

The general, architectural, and other deficiencies of the Scarborough Town Hall have long been a reproach to the municipal authorities. The building is now to undergo further alterations.

Correspondence.

SKIPTON COTTAGE HOSPITAL COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—The correspondence on the above matter was copied from your journal into the Craven Herald, and has elicited the following protest:—

"In reference to the correspondence which appeared in our last issue on this subject, we are informed that it altogether misrepresents the facts, and is a great injustice to a body of gentlemen who have conscientiously endeavoured to discharge a very difficult task."

If the facts have been misrepresented I am indeed sorry, but scarcely think this pettish protest enough to satisfy competitors that they have been fairly treated.

For their information generally, and your correspondents, Mr. Marshall and "The Captain," in particular, I may say that my first intimation that the matter was settled was on being asked to inspect the selected drawings, and then I was astonished to see the perspective in question (bearing motto) and the amended plans bearing name of architect. This was about a week before the award was made public. I saw no other competitive plans.

These are hard facts, and it will require a good deal of "conscientious endeavour" to controvert them.

No doubt many of those on the committee are upright, honourable, and generous men, but I fear that the conditions of the competition must not have been made clear to them, or they would not have broken faith with the competitors, and would have disqualified the selected plans.—Yours truly,

VERBATIM ET LITERATIM.

Enquiry Department.

GLOSSARY OF TECHNICAL TERMS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I noticed a book called the "Glossary of Architectural and Building Terms" advertised in the BUILDERS' JOURNAL about two or three months back. I have been unable to see it again advertised. As I desire to buy the book, could you kindly inform me where it is to be had?—Faithfully yours,

W. M.

The work to which you refer is entitled "Glossary of Technical Terms used in Architecture and the Building Trades," by Gavin James Burns, B.Sc., F.S.I. It is published by Messrs. E. and F. N. Spon, of 125, Strand. Price, 3s.

INDENTURES AND AGREEMENTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be thankful if you would give me a copy of the indentures generally given to an apprentice to the joinery trade; also a copy of the agreement generally made between a builder and a general foreman.—Yours very faithfully,

"BYLDAN."

To give a copy of an apprentice's indenture would encroach too much upon the space at our disposal, without being of interest to the majority of our readers. The forms are obtainable from any law stationer in London. The cost will vary according to the amount of the premium paid (if any), the stamp duty being 5s. for every £5 or part of £5. If no premium is to be paid, the stamp duty is 2s. 6d. The form of agreement generally made between a builder and a general foreman is in the majority of cases verbal, a week's notice only on either side being necessary to terminate it. When, however, a written agreement is made between them, the ordinary form as between master and servant is usually adopted, a copy of which can be obtained from any law stationer in London, stamped with a 6d. stamp. If you enquire of the postmaster in your district he will inform you where you can obtain either of these legal forms in your locality.

Trade and Craft.

TO THE SPECULATIVE BUILDER.

A case of importance to builders was before the West London Police Court recently. Charles Arthur Cook, a builder, was summoned by the Acton Urban Council for using bad mortar in the construction of four houses in Colville Road, South Acton.—Mr. Hemsley, who represented the Council, said there were four summonses.—It was stated by the defendant that it was the finest mortar in London.—Mr. D. J. Ebbitt, the surveyor, produced some samples which appeared black, and crumbled to powder between the fingers. The bye-laws of the Council required the mixture of clean sharp sand with lime, and it was stated that the defendants used foundry refuse. It was stated by experts that the use of mortar of that description affected the stability of the buildings.—The defendant said the rain had washed the lime out of the mortar, of which samples were produced. Foundry ashes made good mortar.—Mr. Knightly said foundry ashes crushed mixed with lime would make good mortar, but they were quite different to foundry refuse.—Mr. Rose was of opinion that it was bad mortar, and said the Council were quite right in taking proceedings to prevent the use of it in the construction of houses. He inflicted penalties, with costs, amounting to £7 9s.

THE PILKINGTON PATENT WIRED GLASS.

Much has been said of late upon the question of fireproof construction, but, whilst all due attention appears to have been given to the subject so far as it relates to the erection of walls, floors, roofs, &c., very little has been said concerning windows, which are generally a ready means for the extension of an outbreak. Now that the debate is proceeding, this is an opportune moment to draw notice to an invention of Pilkington Brothers, Ltd., of St. Helen's, Lancashire—a patent wired glass. A sample of the rough plate kind is before us, and certainly it seems to be a novelty possessing valuable features. The glass is manufactured about a quarter of an inch thick and embedded in the centre is wire netting, which gives it quite an artistic appearance, besides, as may be readily imagined, greatly adding to its strength. One of its chief characteristics is its power of resistance to the effects of fire. Not long since an interesting experiment was made. A brick building (7ft. by 4½ft. inside, and 10ft. high) was erected, and three windows of wire-glass inserted. On one side was one of a single pane, 20in. by 84in.; on the other a window of three panes, supported at their meeting edges by iron bars, and 28in. by 84in. in size; and the third was 34in. by 84in., and consisted of four panes' with the meeting edges unprotected. In the fourth side was a small door. The roof was of sheet iron, with a hole in the centre. A fire of tar barrels was lighted within the structure, and soon the glass was red-hot. Firemen then poured water upon the building, with a 20lb. pressure against the windows, but with no more effect than would happen to a sheet of red-hot iron plate. The glass cracked in all directions, but remained together as one sheet; and neither was there any indication of warping. Such is the account given of this test, which apparently fully demonstrated the claim of the firm that wired glass is "specially applicable to fireproof buildings." But it has other advantages. Used for skylights in railway stations and other places of public resort, it abolishes the need for stretching wire netting underneath to protect persons below. Again, it is of sufficient strength to prevent stones being thrown through it, and burglars would find it a very troublesome barrier to their work, seeing that it is not at all easy to cut it with a diamond. For warehouses, stables, machine shops, and other places where there are frequent breakages of window panes, Pilkington's Patent Wired Glass seems to meet a long-felt want. It is also recommended for deck, port, and cabin lights on ships.

MR. S. J. WARING, JUN., ON ART AND COMMERCE.

The first annual reunion of the combined staffs of three famous business houses identified for many generations with the rise and progress of Art in the home—Warings, Gillow, and Collinson and Lock, now formed into one Company, and trading under the name of Waring and Gillow, Limited—which took place at the Hotel Cecil, was a very interesting, and in some respects a remarkable gathering. The Great Hall of the Hotel Cecil, in which the dinner took place, was a fitting theatre for such a gathering, being one of the earliest decorative triumphs of the house of Waring. Mr. Sam J. Waring, jun., was in the chair, and in replying to the toast of "The Company," given by Mr. R. E. Lawson from the vice-chair, made some very thoughtful remarks on the fusion of Art and commerce. The endeavour of Messrs. Waring and Gillow Limited, he explained, has been to combine the artistic and commercial elements of the business, and whilst endeavouring to retain an even balance between these two great forces, familiarise to all classes the principles of purity of style, beauty of form and colour, and sound construction. We are, he said, stimulating the great artistic tide which has set in, and which is every day increasing in volume. We are endeavouring to bring within the reach and observation of all classes, not only Art in the home, but object lessons in



MR. SAM J. WARING, JUN.

the adornment of the great buildings such as that within which we now have the pleasure of meeting together. To attain this result we have organized a series of departments which shall deal comprehensively with the whole question of sanitation, decoration, and furnishing, and to place them at the service of those who constitute the architectural Profession, that has done so much to elevate the public taste and adorn our streets and houses. This will obviate the difficulties attendant on the employment of numerous contractors, and ensure the completion of an harmonious whole. The amalgamation with Warings of the famous houses of Gillow and of Collinson and Lock have been effected primarily with the object of combining in one spirit of enterprise two houses of the greatest eminence, where work of the highest class shall be produced. At the present moment extensive alterations are in various degrees of consideration and progress which will enable the famous house of Gillow, a house of nearly two centuries' standing, to exhibit the finest range of work that has ever been brought together in the history of our business in this country.—Mr. T. B. Clarke (Gillow and Co.) also responded, and, later, the Chairman gave "The Staff," to which Mr. Frank Murray, Art Director, replied.

It is proposed to erect two new churches in Blackpool—one for the north, and another in place of the old Bethesda Chapel in Kent Road.

TENDERS.

ASHTON-UNDER-LYNE.—For the construction of brick bridge, &c., over river Tame, for the Corporation. Mr. J. T. Earnshaw, C.E., Town Hall, Ashton-under-Lynde.—C. Braddock ... £2,844 1 8 Underwood & Bro. R. C. Fish ... 2,681 10 6 Dukinfield* ... £2,126 6 2 Tate & Gordon ... 2,311 7 2 *Accepted.

BALLYSHANNON (Ireland).—For the execution of waterworks, Bundoran, for the Ballyshannon Union Guardians. Mr. James Perry, C.E., County Surveyor, Galway.—John Cunningham £4,972 0 0 Jas. Brannigan ... £2,823 5 0 Wm. Baird ... 4,522 3 4 John M'Nally ... 3,808 11 3 Jas. Galloway and Sons ... 4,442 0 0 H. R. Blackburn ... 3,726 17 1 T. J. Dixon ... 4,272 14 6 Jas. M'Kee & Sons ... 3,527 9 0 M. Green ... 4,092 18 2 Dunganon* ... 3,527 9 0 *Accepted.

BIRKENHEAD.—For erecting Well Lane Board Schools. Mr. T. W. Cubbon, architect, Bank Buildings, 54, Hamilton-street, Birkenhead:—

General Buildings.	Ordinary Asphalts, &c.	Total.
Brown and Backhouse ... £6,532	2661	£7,493
W. H. Forde ... 6,850	439	7,289
E. Gabbutt ... 6,628	657	7,285
Kelly Bros. ... 6,711	536	7,247
P. Bothwell ... 5,577	532	7,109
J. Merritt ... 5,519	440	6,959
F. Paterson and Son ... 5,369	545	6,915
R. Allen ... 6,430*	485*	6,915*

A supplementary tender amounting to £271 for draining pits on site and levelling grounds has also been provisionally accepted. This work was not included in the general quantities supplied to the contractors.

*Provisionally accepted.

BRIGHTON.—For alterations to schools, York Place, for the School Board. Messrs. T. Simpson and Son, architects, 16, Ship-street, Brighton.—W. Field and Co. ... £8,009 8 P. Peters and Son ... £5,916 0 J. Longley and Co. ... 5,991 0 Sattin & Evershed ... 5,444 0 W. Brown and Son ... 5,978 0

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17½ × 3 × 1½	6 9	6 0	9 1



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BULWELLS (Brecon).—For the erection of intermediate schools at Bulwells, for the Board of Governors. Telfer Smith, architect, Bulwells. Quantities by W. Hawker, 60, Coleman-street, E.C. :—

Smith, Kidderminster	£3,864 0	J. M. Jones, Bulth £3,468 16
W. Jones and Son, Newtown Mont.	3,812 0	H. Price, Bulth
W. Jones and Son, Newtown Mont.	3,812 0	T. Jones, Bulth
W. Jones and Son, Newtown Mont.	3,812 0	A. Meredith, Newbridge-on-Wye
W. Jones and Son, Newtown Mont.	3,812 0	Accepted.
W. Jones and Son, Newtown Mont.	3,812 0	Accepted.

Architect's estimate, £2,986.

CRICCIETH (Wales).—For the construction of a sea-wall, Maes Aberistedd, for the Urban District Council. Messrs. T. Roberts and Son, engineers, Portmadoc. Quantities by the engineers :—

T. R. Bishop	£2,570 0	Evan Williams and Co.	£1,471 11
R. Roberts	2,050 0	Griffith Williams	1,390 0
Thomas Bugbird and Son	1,761 0	Owen D. Jones, stone-mason, Borth, Portmadoc (accepted)	1,371 5
William Jones	1,598 0		
John Hunter	1,435 0		

[Engineer's estimate, £1,448.]

FENSTANTON.—For the construction of sewer, for the St. Ives Rural District Council. Mr. H. G. Martin, architect, Littleport, Isle of Ely :—

*F. Giddings, St. Ives, Hunts. £229 10
*Accepted at £225.

KINGSTOWN (Ireland).—Accepted for the erection of municipal offices, &c., for the Commissioners. Mr. Joseph Berry, borough surveyor, Town Hall, Kingstown. Quantities by Mr. Sutisell :—

H. Pemberton, Ballybrack

[Six tenders were received.]

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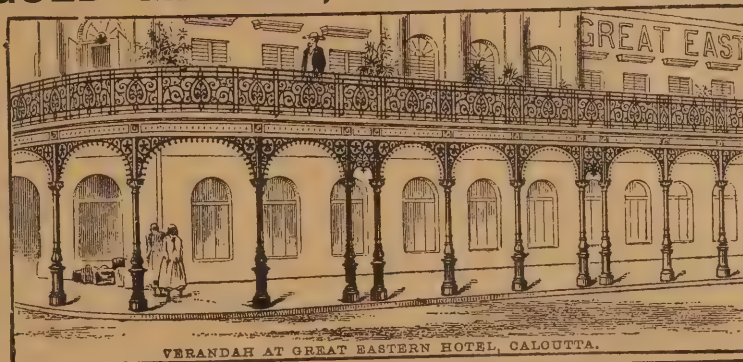
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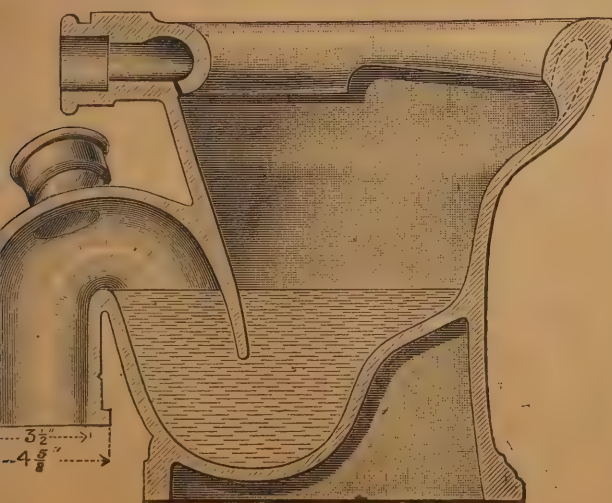


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LADYWELL.—For the erection of a workhouse at Slagrove Farm, Ladywell, for the Guardians of the Poor of the St. Olave's Union. Messrs. Newman and Newman, architects and surveyors, 51, Tooley-street, London Bridge, S.E. —

Foster and Dickie, Rugby	£183,700	0	0
Balaam Bros., 1, Skenton-street, Old Kent-road	180,990	0	0
William Downs, Hampton-street, Walworth	176,000	0	0
Walter Wallis, Balham, S.W.	175,957	0	0
Rudd and Son, Grantham	171,592	8	7
Leslie & Co., Ltd., Kensington-sq., W.	171,300	0	0
Goddard and Sons, Farnham, Surrey	168,400	0	0
Kirk and Randall, Woolwich, S.E.	168,168	0	0
Charles Wall, Chelsea, S.W.	164,850	0	0
Shillitoe and Co., Bury St. Edmunds	153,785	0	0

Accepted.

LONDON.—For the erection of a factory and offices in Blackfriars-road, S.E., for the Wicks' Rotary Type-Casting Company. Messrs. Geo. Ashby Lean and Son, architects and surveyors, Palace-chambers, Westminster, S.W. —

Holloway Bros.	£29,333	Battley, Son, & Ho-	£28,843
C. Ancell	9,128	ness	
H. B. Gammon	9,100	H. J. Williams	8,587
Allen and Sons	8,950	Simmonds Bros.	8,523
		L. H. and R. Roberts.	8,293

LONDON.—For pulling down and rebuilding Nos. 20 and 21, King-street, Covent Garden, for Mr. Alfred Moss. Mr. F. W. Foster, architect, 41, Bedford-row, W.C. —

Woodrow	£25,200	Killby and Gayford	£24,936
Holder and Hedge	5,094	Jerrard	4,853
Howard Bros.	5,000	Bush (accepted)	4,789
Patman and Fothering-		Whitehead	4,775
ham	4,970		

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MAIN ROADS.
TENDERS are required for the SUPPLY OF BROKEN GRANITE for the Year ending MARCH 31st, 1899. Specification, with form of Tender, may be obtained at my office on receipt of stamped addressed envelope. Tenders will only be accepted on the forms provided, and these must be sent in to the Clerk of the Council, The Shirehouse, Norwich, on or before SATURDAY, JANUARY 29th, 1898.

T. H. B. HESLOP, M.Inst.C.E.,
County Surveyor.

Norwich, January 10th, 1898.

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The
Architectural
Review.

VOL. ONE.

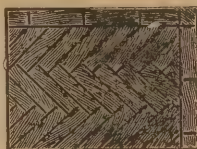
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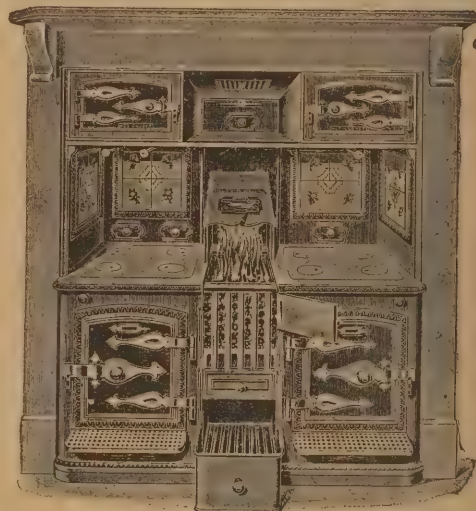
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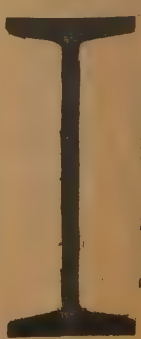
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JANUARY 26TH, 1898.

Practical Carpentry and Joinery.*

By GEO. ELLIS.

(Continued from page xxvi.)

CEILING JOISTS should be fixed to the binders, and not to the girders, so that they may run in the same direction as the floor joists. The joists in framed and double floors should be made to rise towards the middle of the room about $\frac{3}{4}$ in. in 20 ft. to allow for subsequent settlement. The floor joists in doorways should also be kept

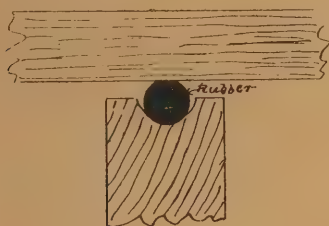


Fig. 62. DANCING FLOOR.

$\frac{1}{2}$ in. higher than the remainder, to enable the door to clear carpets, &c. Girders are sometimes strengthened with an iron fitch plate bolted between the two halves of the beam. The beam is cut down the middle, the pieces reversed and turned with the centre outwards; the fitch plate should be one-twelfth the total thickness and $\frac{1}{2}$ in. less in depth than the beam, so that the weight shall not be taken by the plate when the wood shrinks. The bolts should be the same diameter as the plate is thick, but not less than $\frac{1}{2}$ in.; the larger number to be placed above the neutral axis; those below to be near the ends. In mortising a fitch girder do not cut a mortise in the same line as a bolt hole nearer to it than 18 in. According to experiments made in the Government dockyards, the breaking weight of a girder is increased two and a half times by fitching it, but a fitched girder, made up with deals or planks, will not be so strong by one-sixth as a beam of the same total dimensions cut down as above described, because planks and deals are cut from younger and weaker trees than balk timber. Iron girders are frequently used now instead of wood for large spans in combination with wood and iron binders. Both methods of treatment are shown in Fig. 60. On the left, a wood binder is shown notched on to a plate, bolted to the web of the girder. On the right a rolled iron binder is fixed by means of angle irons bolted in a similar manner. The ceiling joists are cut between the binders, and lipped over the lower flange to form a fixing

for the laths. Dancing floors are arranged so that they shall be elastic without exercising undue strain upon the walls of the building. One method is to frame the joists into a kind of curb or frame bolted together at the angles which is free to move between the walls vertically, and resting upon a series of carriage springs fixed to the wall-plates, carried on a set-off of the wall below, as shown in Fig. 61. Another way is to groove the top edges of the joists slightly, and insert rolls or cushions of solid rubber, laying the boards on this in bays formed of narrow boards glued together and nailed at their ends (see Fig. 62). Fireproof floors are formed by placing deals side by side to form a solid mass, and nailing them throughout, the under edges being dovetail grooved to form a key for the plastering.

FLOOR COVERINGS are of three kinds, boards or battens, called plain floors, parquet or veneered floors, and solid or wood block floors. Floor boards are now invariably cut from batten stuff, never from deal, unless specially ordered, for it has been proved by experience that the shrinkage and casting is much less with the narrower widths. The best prepared "yellow deal" flooring is shipped from the White Sea ports; the best spruce or "white deal" from Christiana and Dram. Floor boards are laid in two ways, folding or sprung, and pressed up with floor-dogs; in the former method a board being nailed next the wall and at right angles with the joists; then another is nailed parallel with it at a distance equal to the width of four or five boards, less $\frac{1}{2}$ in.; then the intermediate boards are placed between, tilted up in the form of an arch, two cross-pieces laid on the crown, and a workman jumps on each end of the bay, forcing them down flat, when they are immediately nailed, and the process is repeated right across the floor. This is only applicable to square or ploughed and tongued joints; other varieties are laid with the floor-dog. This is a small,

strong, iron cramp, fixed to the joists by lugs or screw-plate, and containing a stout screw mounted on an adjustable swivel eye, capable of moving forward about 6 in. They are used in pairs. One board is fixed as an abutment, then half a dozen are laid in position, the dogs brought up close and turned up, forcing the boards together with great pressure. They are then fixed with floor brads, driven in the direction of the fixed board. The brads should

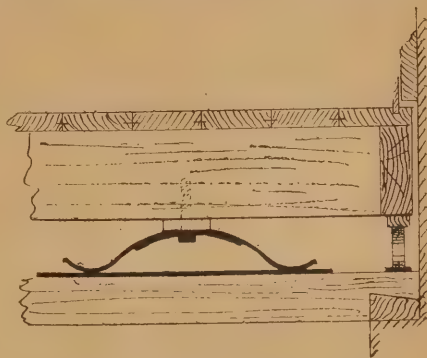


Fig. 61. SPRING DANCING FLOOR.

not be longer than twice the thickness of the boards. Brads are distinguished from ordinary nails, which are termed clasp, by having their heads projecting only in one direction, whilst that of the clasp nail projects all round (see Fig. 64), in which A and C are the side, and B and D the edge views.

After the boards are all laid, and the brads punched a little below the surface, the floor is "cleaned off." This process consists in bringing the boards to a more or less regular surface with planes, &c., varying from a mere shaving at the joints to a highly-finished

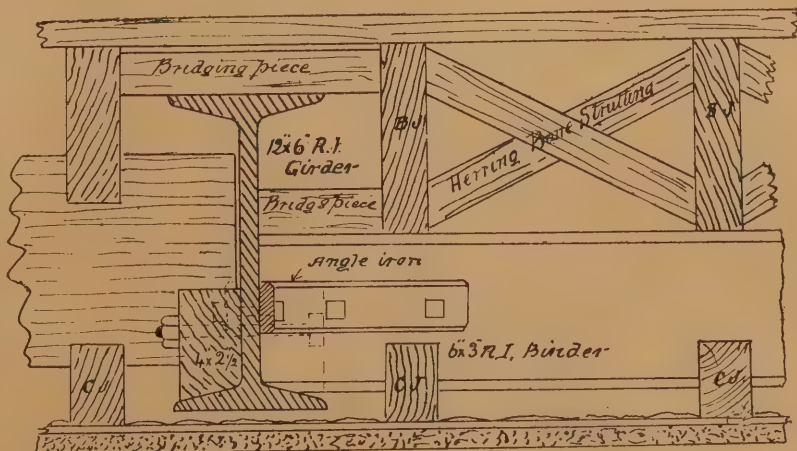


Fig. 60. DETAILS OF COMPOSITE FLOOR (TWO VARIETIES).

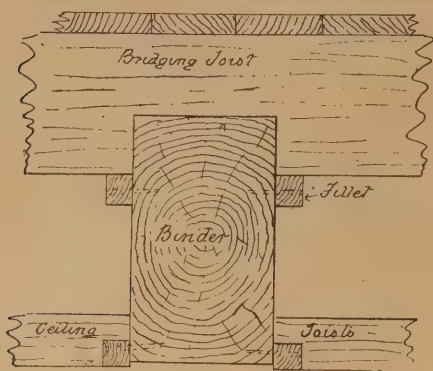


FIG. 63. ENLARGED SECTION AT B-C, FIG. 50.

public buildings, and basements of dwelling-houses, and also for covering fireproof floors. They are durable, hygienic, and of good appearance, and are constructed of rectangular blocks of hard or soft woods, about 3in. wide by some multiple of width in length—usually four times—with thickness varying from 1in. to 3in., with square dowelled or matched edges, fixed or bedded in pitch, tar, or some elastic composition. For basements, the ground should be excavated to a depth of 8in., well rammed, and filled in with concrete, which is struck off level and allowed to dry, when it is floated in Portland cement to a depth of 1in. When this is thoroughly set, it is brushed over with a hot mixture of tar, pitch, &c.; the blocks, heat dried, are dipped in the mixture, and laid herring-bone fashion. When the space is covered, tallow is smeared over the surface to facilitate the planing. Fig. 67 is a section of a solid wood block floor for a basement.

Parquet floors are of two kinds, solid and veneered; in the solid form, the sub-floor is traversed true, and covered with pieces of hard wood of various shapes and sizes, glued down in such a manner as to form geometrical patterns, aided by the different colours of the wood: it is cleaned off in the usual way when finished. The veneer or thin parquet is made in some instances as slight as $\frac{1}{16}$ in., the better qualities about $\frac{3}{16}$ in. thick. It is glued up into square panels of from 1ft. to 3ft. wide, the component pieces ploughed and tongued at the joints, and a plough groove worked around the outside of each panel. The tongues are inserted as the panels are laid, and the last panel inserted in the centre is fastened down with screws and the holes pelleted. This latter form is removable, and does not require any particular preparation of the sub-floor.

All openings in floors should have a margin of hard wood mitred and screwed round them, to protect the edges and hide the end grain of the boards.

Fireplaces should be bordered with oak slips $2\frac{1}{2}$ in. by $\frac{1}{2}$ in., scribed to fit the hearthstones, and glued and bradded in a rebate sunk in the floor boards.

The heartsides of floor boards should always be placed downwards, as the boards curl away from the heart (see Fig. 12, page 123), and the edges being secured, the board remains flat;

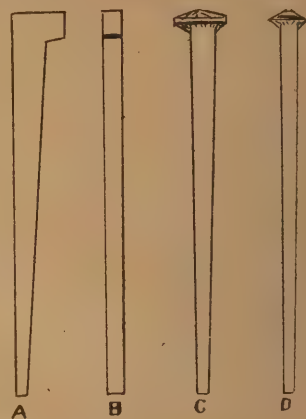


FIG. 64. NAILS, FLOOR BRADS, CUT CLASP.

also the heart will frequently wear loose, and injure the feet when passing over it. For important floors the boards should be selected from those cut with the annual rings parallel to the edges; boards so cut will neither curl, tear, or shrink much.

(To be continued.)

THE Waterworks Committee of the Manchester Corporation are about to ask for the approval of the City Council to the letting of the tenders for the buildings and plant required for an additional hydraulic-power station in Manchester. Borrowing powers have been secured to the extent of £100,000, but it is not intended to expend the whole of that sum at present. The new station will be situated in Pott Street, Ancoats, on land purchased for the Paving Committee, and will ultimately, in regard to the plant, be equal in capacity to the Gloucester Street Station. It will not only be available for supplying an entirely new district, but will also be coupled to the mains in the existing area of supply, in order to remove any possibility of there being a deficiency of power.

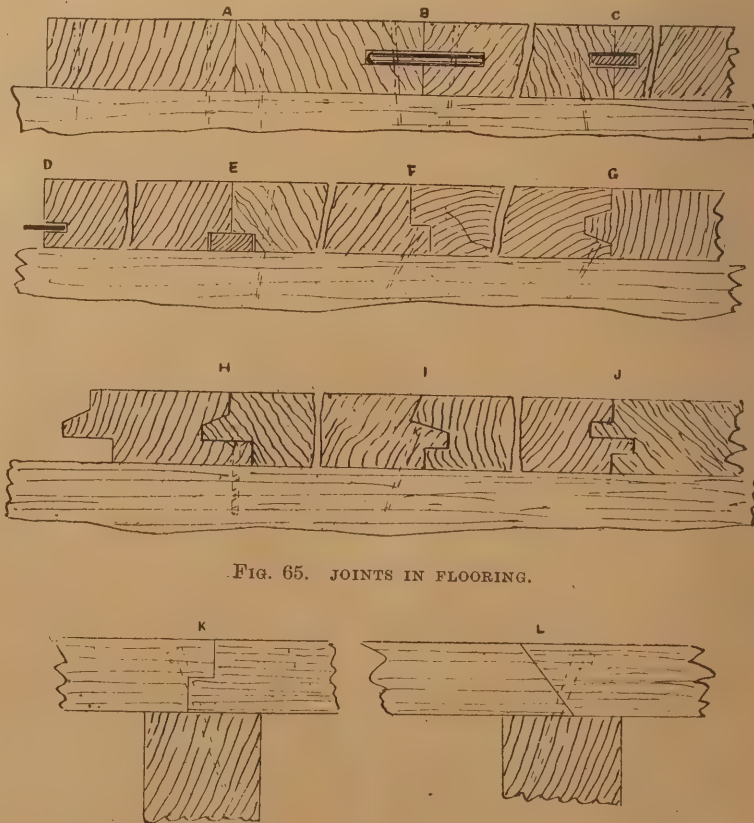


FIG. 65. JOINTS IN FLOORING.

surface, true in every direction, and fit for polishing, according to the quality of work in hand. A description of the latter will include all the stages at which less important floors have operations suspended. The joiner commences by fastening a thin strip of wood around the edge of the floor to keep the planes from the wall, then with a rebate plane works a margin all round to the depth of the lowest board on the particular side operated on. Then the bulk of the irregularities are removed by the jack plane, the workman proceeding in a diagonal direction across the floor. This process, called traversing, is to prevent the cross-grain boards "tearing up." Then follows the trying plane, first traversing, then with the grain bringing the surface true, this being tested with straight edges as the work proceeds. Next the surface is faced up with the smoothing plane, the corners reduced to the general level by aid of thumb planes, and finally all the marks removed with a scraper (a tool to be described later on). If the floor is to be wax-polished it is now ready, but if French polished, as in parquetry, it is rubbed over in the direction of the grain with two grades of glass paper, all the holes, interstices, &c., being filled with coloured stopping.

Several forms of joints for the edges of boards are in use, designed either to prevent the passage of dirt and draught through the interstices, or to prevent the edges curling up, and in some cases to hide the method of fixing. Some of these are shown in section in Fig. 65. The Square Joint (A) is only used in inferior work, as the shrinkage of the boards soon destroys its efficiency. The Dowel Joint (B) is but a slight improvement, the shrinkage having nearly the same effect as in the latter, the boards only keeping regular at the dowels. The Ploughed and Tongued Joint (C) is the most economical and generally efficient, its principal drawbacks being the difficulty of removing a single board without disturbing the remainder, and the destruction of the joint through the wear of the upper surface. These defects are to some extent remedied in the next three methods shown. In the Hoop Iron Joint (D) a thin groove is made with the saw on each edge near the bottom surface, and thin strips of hoop iron inserted. The Filleted Joint (E), much used in warehouse and barrack floors, in which the two back edges of the boards are rebated out $\frac{1}{2}$ in. and 1in. by $\frac{1}{2}$ in. fillets laid upon the joists and the boards nailed over them. The Rebated Joint (F) is a very useful one, as only one edge of each board requires nailing. It is only suitable for boards over $1\frac{1}{2}$ in. thick. The Matched Joint (G), used in imported preparing flooring, and the improved ditto (H), for secret fixing, are good forms if the stuff is seasoned, otherwise they become irregular when the boards shrink. Of the Secret Joints (I and J), the latter is the better, to counteract shrinkage; but the tongues are very liable to get broken off by careless handling. The joints at the ends of the boards are called heading joints, and should be rebated as at K (Fig. 66), and not more than two occur without a break (see Fig. 48, page xxvi.). Bevel ends (as at L) make good joints when well fitted, but this is seldom done, the workman contenting himself with making the joint fit on the surface. Wood block floors are much used now in schools,

FIG. 66. HEADING JOINTS.

DILAPIDATIONS.*

BY PROF. HENRY BUSHELL, F.S.I.

(Continued from page xxxiv.)

GOOD tenantable repair," which one would naturally conclude means a somewhat better state of repair than in the case of Crawford v. Newton, already quoted, is apparently synonymous with "tenantable repair," and is exemplified by the well-known case of Proudfoot v. Hart, which was heard in 1890, and was a motion by the defendant that the findings and award (and the judgment directed to be entered therein) of the official referee appointed to try the question in the action be set aside or varied upon the grounds—(1) That the words "good tenantable repair" in the agreement of tenancy were wrongly construed by the official referee; (2) that his findings were against the weight of evidence; (3) that the damages awarded were excessive; (4) that he wrongly awarded the plaintiff £5 for loss of rent of the premises whilst the same were under repair. This case shows that a tenant who, by his agreement or under the covenants in his lease, is merely bound to deliver up a house at the expiration of his term in good tenantable repair, is liable on both commissive and permissive waste; but he is not bound to repair, restore, or replace anything worn out by age. He need not put up new wall papers because the old ones have worn out, nor need he repaint inside woodwork where painting is decorative only. If, however, he allows woodwork

* A paper entitled "The Practical Application of the Principles and Law of Dilapidations," read before the Auctioneers' Institute.

to perish for want of the preserving effects of paint, he is liable for permissive waste. He must patch up the premises so long as in the



FIG. 67. A SOLID BLOCK FLOOR.

nature of things patching is reasonable, but he need not renew. He is not bound to clean or scour wall paper or to whitewash ceilings. It appears that the learned official referee who tried the case in the first instance was under a wrong impression all through, as to what constituted good tenantable repair. To quote an extract from Mr. Justice Cave's summing up, he said: "Here it is quite impossible to read through what the learned official referee has said without seeing that he has not adopted that view, at all events, of the law, because he says, 'I thought that if the paper and paint were thoroughly worn out he must therefore re-paint or re-paper where done before.'" Then comes the significant remark by Mr. Justice Cave, "That is exactly what the tenant is not bound to do!" The issue was that Justices Cave and Mathew agreed in referring the case

back to the official referee. The case was, however, taken to the Court of Appeal, but the appeal was dismissed, and the view of Justices Cave and Mathew upheld. In Belshe v. McIntosh, Baron Alderson, in summing up to the jury, said: "It was difficult to suggest any material difference between the term

'HABITABLE REPAIR'

and the more common expression 'tenantable repair'; they both must import such a state, as to repair, that the premises might be used and dwelt in not only with safety, but with reasonable comfort by the class of persons by whom, and for the purposes for which they are to be occupied." "Good tenantable repair," said Lord Justice Lopes, in Proudfoot v. Hart, "is such repair as, taking into account the age of the house, the character of the house, and the locality in which the house is situated, a 'reasonably-minded tenant' of the class of tenants who would be likely to want such a house might reasonably require in order to make the house fit for his occupation." This is a praiseworthy attempt at a definition which shall be concise and comprehensive, but I fear that it, like most of our attempts, opens the door to further futile efforts in the same direction; for who can say how the phrase "reasonably-minded tenant" is to be properly defined?

"GOOD SUBSTANTIAL REPAIR"

produces some degree of uncertainty as to what is intended by such an expression. Surveyors, I think, are agreed that such implies the quality of the reparations, rather than the corporeal nature of them, as, for example, repair to the main fabric.

(To be continued.)

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Jan. 29	Wolverhampton—Construction of Shelter...	Parks and Baths Committee	J. W. Bradley, Borough Engineer, Wolverhampton.
" 29	Pudsey—Erection of Sunday School	Trustees	Hodgson and Farrar, Architects, Bank Chambers, Pudsey.
" 29	Cork—Erection of Nine Houses	J. Kelleher	W. H. Hill and Son, 28, South-mall, Cork.
" 29	Morley, Yorks.—Erection of Bakery, Stables, &c.	Metcalfe and Bradshaw	T. A. Buttery and S. B. Birds, Architects, Morley.
" 29	Pontefract—Erection of Shop Front, &c.	Mrs. Brook	Tennant and Bagley, Architects, Pontefract.
" 31	East Ham, E.—Erection of School Buildings	School Board	R. Curtis, 120, London Wall, Moorgate-street, London.
" 31	London, S.W.—Erection of Two Refreshment Houses	London County Council	Architect's Department, County Hall, Spring-gardens, S.W.
" 31	Tregaron, Wales—Erection of School	County School Managers	L. B. Price, Doldremont, Lampeter.
" 31	Cork—Pair of Semi-detached Villas		W. H. Hill and Son, 28, South-mall, Cork.
" 31	Kirkcaldy—Six Shops and Fifteen Dwelling-houses	Whytehouse Estates Co. Ltd.	R. Little, 4, St. Brycedale-avenue, Kirkcaldy.
" 31	London, E.C.—Electricity Supply Sub-station	Shoreditch Vestry	Kincaid, Waller, & Manville, 29, Gt. George-st., Westminster.
" 31	London, E.—Erection of Three Houses		W. Barker, 3, Richmond-street, Londonderry.
Feb. 1	Southampton—Erection of Hospital	Town Council	Greenway and Smith, 21, Queen Anne's-gate, Westminster.
" 1	Dudley—Erection of School, &c.	Grammar School Governors	Woodhouse and Willoughby, 100, King-street, Manchester.
" 1	Tullyallen, near Mellifont, Ireland—Church	Rev. T. Taaffe, P.P.	W. H. Byrne, 20, Suffolk-street, Dublin.
" 1	Isle of Grain, Kent—13 Coastguard Dwelling-houses	Admiralty	Director of Works Department, Northumberland-avenue, W.C.
" 1	Bourne, Lincs.—Erection of Cattle Market	Warwicks and Richardsons, Ltd.	F. G. Shilcock, Architect, West-street, Bourne.
" 1	Manchester—Erection of Sixty Cottages (Two Contracts)	Improvement Committee	City Surveyor, Town Hall, Manchester.
" 1	Paignton—Erection of Buildings	Gas Company	C. G. Dawson, Manager, Gasworks, Paignton.
" 1	Waterloo, Lanes.—Disinfector Buildings, &c.	Urban District Council	F. S. Yates, Surveyor, Fown Hall, Waterloo, Lanes.
" 1	Glasgow—Steward's House, Water Tower, &c., at Hospital (Five Contracts).	Corporation	City Engineer, 64, Cochrane-street, Glasgow.
" 1	King's Lynn—Erection of Purifying House	Gas Company	E. G. Smithard, Engineer, Gasworks, King's Lynn.
" 2	New Cross, S.E.—Structural Alterations at Hospital	Metropolitan Asylums Board	T. D. Mann, Norfolk House, Norfolk-street, Strand, W.C.
" 3	Sandbach—Brick Tank at Pumping Station	Urban District Council	W. Wyatt, Engineer, Bryndwr, All Saints, Shrewsbury.
" 3	Mitchelstown, Ireland—Residence	Guardians	R. Fitzgibbon, Clerk to Guardians, Workhouse, Mitchelstown.
" 4	Penrhyneddraeth, Wales—Vagrant Wards, Boiler-house.	Guardians of Festiniog Union	W. W. Thomas, 15, Lord-street, Liverpool.
" 4	Halifax—Pair Semi-detached Villas		M. Hall, 29, Northgate, Halifax.
" 5	Port Talbot, Wales—Erection of Schools	Margam School Board	F. B. Smith, Architect, Port Talbot.
" 5	Broadstairs—Erection of Public Conveniences	Urban District Council	H. Hurd, Town Surveyor, Council Offices, Broadstairs.
" 5	Earlestown—Erection of Premises	Industrial Co-operative Society Ltd.	P. M. Beesley, 2, Bridge-street, Earlestown.
" 7	Hipperholme, Yorks.—Erection of Offices, &c.	Urban District Council	J. F. Walsh, Architect, Lanes. & Yorks, Bank-chas. Halifax.
" 7	Weedon—Erection of Shelter, Fencing, &c.	Parish Council	J. B. Williams, Surveyor, Moot Hall, Daventry.
" 7	South Acton, W.—House and Laundries	H. Hawkes	E. Monson, 22, Buckingham-street, Adelphi, W.C.
" 8	Hove, Sussex—Erection of Three Dwelling-houses	Lords Commissioners of the Admiralty	Director of Works, 21, Northumberland-avenue, W.C.
" 8	Battersea and Hampstead—Enlargement of Fire Engine Stations.	London County Council	Architect's Department, 13, Spring-gardens, S.W.
" 9	Sunderland—Erection of Infirmary Buildings	Union Guardians	W. and T. R. Milburn, 20, Fawcett-street, Sunderland.
" 10	London, N.—Erection of Infirmary	Guardians of St. Mary, Islington	W. Smith, 65, Chancery-lane, W.C.
" 15	Ipswich—Erection of School Premises	School Board	J. S. Corder, Wimborne House, Tower-street, Ipswich.
" 15	Edmonton—Erection of Schools	School Board	H. W. Dobb, 110, London Wall, E.C.
" 22	St. Ives, Cornwall—Chapel and Schoolroom	Committee	W. Faulk, Fore-street, St. Ives, Cornwall.
Mar. 14	Llangathen, Wales—Stone Bridge over River Towy	Carmarthen County Council	T. Jones, Clerk, County Council Offices, Llandovery.
No date.	Annandale, Scotland—Erection of Hotel		F. J. C. Carruthers, 25, Buccleuch-street, Dumfries.
"	Brixham, Devon—Roof and Lead Gutters to Church		Miss E. Chilcote, Hill House, Brixham.
"	Cheadle Hulme—Alterations, &c., to Church		F. Bindloss, 4, Chapel-walks, Manchester.
"	Finedon, Northants—Erection of Six Houses		Mosley and Anderson, Goodyear-chambers, Northampton.
"	Leeds—Joiner, Plumber's, &c., Work to House		W. Squires, Architect, Royal Exchange-chambers, Leeds.
"	Leeds—Erection of Sunday School		W. F. Braithwaite, 6, South-parade, Leeds.
"	Leeds—Erection of Sixteen Houses		P. Robinson, 34, Burley-hill, Leeds.
"	Lightenham, Burnley—Farmhouse and Homestead		Kay-Shuttleworth, Estate Office, Gathorpe Hall, Burnley.
"	Leeds—Erection of Arcade		Amble and Bowman, 9, Park-place, Leeds.
"	Llanelli—Building Stables, &c.		W. Griffiths, Architect, Falcon-chambers, Llanelli.
"	Manchester—Pulling Down & Re-erection of 2 Shops, &c.		T. Cook, 39, Victoria-buildings, Victoria-street, Manchester.
"	Stafford—Building Six Cottages	Industrial Co-operative Society	N. Joyce, Architect, Greengate-street, Stafford.
"	Stanley, Durham—Erection of Two Houses	A. Cumberledge	T. E. Crossing, Architect, Stanley, R.S.O.
"	Wakefield—Formation of Cycling Track	Trinity Athletic Company, Limited	H. Crutchley, Engineer, Town Hall-chambers, Wakefield.
"	Misterton, Notts.—Erection of Two Houses	Gilbert and Hill	Eyre and Southall, Architects, Gainsborough.
"	Dublin—Alterations, &c., to Business Premises		Moyers and Sons, Architects, Foster-place, Dublin.
"	Starbeck, Harrogate—Laundry		Oliver Leeson, Architects, Mosley-st., Newcastle-on-Tyne.
"	Kendal—Six Houses	Mr. Millward and others	J. Hutton, Architect, Kendal.
"	St. Michael's, Shap—Church Restoration		G. D. Oliver, Architect, Carlisle.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Tamworth—Additions to Police Station	Staffs. County Council	W. H. Cheadle, Architect, Stafford.
"	Wantage, Berks.—Clock and Tower		W. Hanson, Architect, Wantage, Berks.
"	Central America—Construction of Shot Tower		R. B., care of Davies and Co., Finch-lane, Cornhill.
"	Cross Houses, nr. Shrewsbury—Casual Wards, Lodge, &c.	Guardians of Atcham Union	J. R. Withers, Architect, St. Mary's-court, Shrewsbury.
"	Cork—Erection of Dwelling Houses	J. Wolfe	A. Hill, 22, George's-street, Cork.
ENGINEERING—			
Jan. 31	Buenos Ayres, Argentina—Construction of Port...		Legation of Argentine Republic, London.
" 31	Southampton—Fire Engine and Two Fire Escapes	Corporation	G. B. Nalder, Town Clerk, Municipal Offices, Southampton.
" 31	St. Chamond, France—Electric Lighting		Municipal Authorities, St. Chamond, France.
" 31	Erington—Supply of Dynamos, Motors, &c.	Town Council	F. J. Tillstone, Town Clerk, Town Hall, Brighton.
" 31	New Brancepeth, Durham—Filtering Tanks, &c.	Brandon Urban District Council	R. Gardner, Surveyor, Langley Moor.
" 31	London, W.—Electric Light, Wiring, &c., at Workhouse	St. Marylebone Guardians	A. S. Snell, 22, Southampton-buildings, Chancery-lane, W.C.
Feb. 1	Dover—Supply of Engines	Town Council	H. E. Stilgrove, Borough Engineer, Town Hall, Dover.
" 1	Birkenhead—Two Steel Ferry Steamers	Corporation	Ferry Manager, Woodside, Birkenhead.
" 1	Swansea—River Dam, Tunnel, &c.	Corporation	G. H. Hill and Sons, 5, Victoria-street, Westminster.
" 1	Bradford—Tramways Electrical Equipment (3 Contracts)	Tramways Committee	City Electrical Engineer, Town Hall, Bradford.
" 1	Birkenhead—Extension of Railway, &c.	Gt. W. and M. Rys. Joint Committee	Great Western Engineer, Gloucester Station.
" 2	Birkenhead—Widening Railway	Committee of L. & N. W. & G. W. R. Cos.	Joint Engineer, Woodside Station, Birkenhead.
" 2	Gainsborough—Pumping Machinery	Urban District Council	P. Griffith, 55, Parliament-street, Westminster.
" 2	Wimbledon—Electric Lighting Works (Six Contracts)	Urban District Council	A. H. Preece, 39, Victoria-street, Westminster.
" 2	Edinburgh—Construction of Aqueduct	Edinburgh and District Water Trustees	J. Wilson, 72A, George-street, Edinburgh.
" 2	Rugby—Underdraining Sewage Farm	Urban District Council	D. G. Macdonald, Engineer, Rugby.
" 2	Ashton-under-Lyne—Electric Light Installation	Baths Committee	J. Neal, Borough Comptroller, Town Hall, Ashton-under-Lyne.
" 2	Brussels—Supply of Twin-screw Tug		Department of Marine, Bourse, Brussels.
" 4	Easebourne, Sussex—Construction of Well	Midhurst Rural District Council	J. Taylor, Sons, & Santo Crimp, Gt. George st., Westminster.
" 5	Radcliffe, Lancs.—Precipitation Tanks, Filter Beds, &c. (Two Contracts)	Urban District Council	Engineer, Council Offices, Radcliffe.
" 7	Buckfastleigh, Devon—Outfall and Purification Works	Urban District Council	J. Willcocks, Surveyor, Buckfastleigh.
" 7	Belfast—Reed Horn Oil Engine and Air Compressors, &c.	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 9	Teignmouth—Covering, Belining, &c., to Reservoirs (two contracts)	Urban District Council	C. Jones, Council's Engineer, Town Hall, Teignmouth.
" 18	Barton-on-Humber—Brick Tank and Gasholder	Gas Company	G. H. Hickley, Engineer, Gas Offices, Barton-on-Humber.
" 19	Rochdale—Dynamos, Ballancer, and Boosters, &c.	Corporation	Lacey, Clirehugh, & Sillar, 10, Delahay-street, Westminster.
" 22	Madrid—Repairing Submarine Telegraph Cables		Commercial Department, Foreign Office, London.
No date.	Leeds—Settling Tank at Tannery	H. Nichols	T. Winn, 90, Albion-street, Leeds.
"	Llanelli—Supply of Steam Pumps	Gaslight Company	A. R. Cawley, General Manager, Pentre, R.S.O., Glam.
"	Southampton—Fireproof Floors, Warming and Ventilating Plant, &c.	Corporation	W. B. G. Bennett, Borough Engineer, Municipal Offices, Southampton.
"	Kislingbury, Northampton—Reservoir, Laying Water Main, &c.	Rural District Council	W. Hull, 12, St. Giles'-street, Northampton.
FURNITURE AND FITTINGS—			
Feb. 14	Stratford, E.—Fittings and Furniture to Public Library	County Borough Council	F. C. Hillery, Town Clerk, Town Hall, West Ham, E.
IRON AND STEEL—			
Jan. 31	Inverness—Supply of Cast-iron Pipes	Gas Commissioners	K. Macdonald, Clerk to Commissioners, Inverness.
" 31	Cairo—Supply of Prison Cell Locks		Inspector-General of Prisons, Ministry of Interior, Cairo.
Feb. 2	Ryde, Isle of Wight—Supply of Cast-iron Pipes, &c.	Corporation	Borough Surveyor, Town Hall, Ryde, Isle of Wight.
" 9	Christiania—Supply of Railway Plates	Norwegian State Railways	Commercial Department, Foreign Office, London.
No date.	Liverpool—Iron Enamel Letters		A. Cotes and Co. Ltd., 2, South John-street, Liverpool.
PAINTING AND PLUMBING—			
Jan. 31	London, S.E.—Painting and Repairs	London County Council	Architect's Department, County Hall, Spring Gardens, S.W.
" 31	Wakefield—Painting, &c., Town Hall, &c.	Corporation	R. Porter, City Surveyor, Town Hall, Wakefield.
Feb. 7	Manchester—Painting (sixteen contracts)	Lancs. and Yorks. Railway Co.	Engineer, Hunt's Bank, Manchester.
No date.	Winkleigh, North Devon—Painting, &c., Clock		P. Brentidge, Linden, Winkleigh.
ROADS—			
Jan. 29	Hoole, Chester—Street Works	Urban District Council	A. E. Caldecott, 17, Newgate-street, Chester.
" 29	Loughborough—Metalling, Sewering, Paving, &c.	E. H. Warner	Woolley & Holbeche, Surveyors, Bectory-pl. Loughborough.
" 29	Norwich—Materials, Tools, Team Labour, &c.	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 29	South Weald, Billericay, Essex—Road Works	Rural District Council	J. Young, Guildford Lodge, Brentwood.
" 31	Inverness—Laying Carriageway with Wood Blocks		E. A. Mackenzie, Burgh Surveyor, Inverness.
" 31	London, N.—Road and Sewer Work (six contracts)	Hornsey Urban District Council	J. J. Lovegrove, Engineer, Southwood-lane, Highgate, N.
" 31	London, W.—Supply of Old Granite Pitchings		J. T. Wimperis and Arber, 25, Sackville-st., Piccadilly, W.
Feb. 1	Walsall—Road-making	Corporation	Borough Surveyor, Bridge-street, Walsall.
" 2	Litherland, Lancs.—Completing Passage	Urban District Council	W. B. Garton, Council's Surveyor, Sefton-road, Litherland.
" 2	Fulham, S.W.—Road-making and Paving Works	Vestry	C. Botterill, Surveyor, Town Hall, Walham Green, S.W.
" 2	Middleton—Sewering, Paving, Levelling, &c., Roads	Corporation	W. Welburn, Borough Surveyor, Town Hall, Middleton.
" 3	Leamington—Limestone Tar Paving	Corporation	The Engineer, Town Hall, Leamington.
" 3	Cockermouth—Repairing Highways	Rural District Council	— Wilson, Surveyor, Cockermouth.
" 5	London, N.—Supply of Road Materials, &c.	Stoke Newington Vestry	S. E. Burgess, Surveyor, 26, Church-st., Stoke Newington.
" 7	Enniskillen, Ireland—Supply of Road Metal	Commissioners	Commissioners' Depot, Round O, Willowby-pl., Enniskillen.
" 12	Spilsby—Supply of Broken Granite and Slag	Rural District Council	F. J. Dixon, District Surveyor of Highways, Spilsby.
" 12	Uddle—Supply of Slag and Granite	Rural District Council	N. E. Dixon, Council's Surveyor, Oundle.
No date.	Hanley, Staffs.—Laying, Levelling, and Forming Streets	Warrington	R. Scrivener and Sons, Architects, Hanley.
"	Harrow—Forming Roads and Laying Sewers		A. Sykes, 45, Finsbury-pavement, London, E.C.
SANITARY—			
Jan. 31	Keighley—Pipe Sewers, &c.	Rural District Council	Barber, Hopkinson and Co., Craven Bank-chas., Keighley.
" 31	Edinburgh—Pipe Sewer, &c.	Town Council	Burgh Engineer, 1, Parliament-square, Edinburgh.
" 31	Pontywin, Newport—Main Drain, Wash-out W.C.'s, &c.	Provident Association, London, Limited	T. Cadogan, 17, Provident-terrace, Pontywin, Newport.
Feb. 1	King's Lynn—Pipe Sewers	Corporation	E. J. Silcock, Borough Engineer, King's Lynn.
" 1	High Holborn—Reconstruction of Sewer	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 1	Wandsworth, S.W.—Drainage Works, &c.	Board of Works	H. G. Hills, Clerk to Board, East Hill, Wandsworth, S.W.
" 1	Horncastle—"Ives" Precipitating Tank	Urban District Council	E. W. Ives, 20, Albert-street, Derby.
" 2	New Brompton, Kent—Construction of Drains, &c.	Gillingham Urban District Council	J. Taylor, Sons, & Santo Crimp, 27, Gt. George-st., Westminster.
" 2	Carleton and Dorrington, near Pontefract—Drainage Works (two contracts)	Pontefract Rural District Council	J. Richardson, 5, Central Bank-chambers, Leeds.
" 9	New Wandsworth, S.W.—Reconstruction of Drainage, &c., at Workhouse	Guardians	T. W. Aldwinckle, 1, Victoria-street, Westminster.
" 14	Tipperary—Sewers, Drains, &c., at Workhouse	Guardians	J. Gubbins, Clerk, Workhouse, Tipperary.
" 16	Burnley—Pipe Sewers Manholes, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
Mar. 15	Tirlemont, Belgium—Sewerage Works		Secretariat Communal, Tirlemont, Belgium.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 1	Rugby—Public Clock		Urban District Council.
" 7	Eastleigh—Plans of Public Offices	£52 10s., £21	Urban District Council.
" 7	Wolverhampton—Designs and Tenders for Motor Vans for Street Scavenging.		Public Works Committee.
" 14	Barrow-in-Furness—Designs for Technical Schools	£50, £20	Corporation.
Mar. 1	Newcastle-on-Tyne—New Infirmary (Local Architects).	(No First), £150, £100, £50	Building Committee.
" 14	Berwick-on-Tweed—Plans of Police Station & Lock-up	£50, £25	Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major Cameron, R.E., Colonial Offices, Downing-st., S.W.

THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS.

An Architectural Causerie.

The Dissipations of an Architect. At some future date we may perhaps consider from a philosophic standpoint the dissipations of the British Workman, which are more numerous and varied than one is likely, at first sight, to imagine. For the present, however, we will be content with the smaller scope presented by the consideration of the forms of dissipation to which an architect is

to design a cart-shed, or the unhappy man whose drawing desk was burdened with a pile of sketch-books, and whose terrible degradation prevented his working for more than five minutes without opening one or another, we need no further urging to adjure all most solemnly never to sketch except under the following conditions—viz., when one wishes to train one's powers of observation and test whether such powers are capable of grasping all the essentials of a building; when one feels in entire sympathy with the spirit of the building drawn; when the building illustrates some mental process that one thinks one has been able to penetrate; and in a few other cases too exceptional to require formulating. In most cases, however, the destruction of the sketch should be insisted on as the best test as to its influence being for good or evil. Another course of dissipation is open to the architect who indulges in colour fantasies. Architecture, no less than Scripture, is purely an appeal to the emotions through form, and the introduction of colour is no less distracting in one than in the other in their most intense forms

one, provided you are strong enough to reach your full height in Architecture and in your pet craft or crafts as well. But the chances are rather against you. After all, our brief exhortation but resolves itself into an expansion of the old saw about the shoemaker and his last. With this difference only, that the architect is so imbued with the many-sided character of his Profession, that he is somewhat apt to try and extend it beyond its natural and desirable limits, with the probability that by so doing he is dissipating energy not to be spared from the study of the main principles of the Art itself.

H. V. L.

The New Assistant.

It was about two o'clock, and nearly all the draughtsmen had returned from lunch. The architect, a rather good-looking man, was discussing with the head assistant the question of door heights in Mr. Slee's new house at Barnes. The architect was of opinion 7ft. openings were the least that



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. FIRST PREMIATED DESIGN. BY MESSRS. MCKEWAN AND DUNN.

peculiarly liable. In order to disarm the criticisms of those who may fancy that we propose to lay bare what we may conceive to be all the architect's little private weaknesses, let us at once explain that nothing is further from our thoughts than an excursion outside the limits of the strictly professional aspect, and that the dissipations to which we shall refer are those only in which the architect and not the man is concerned. Now the first and perhaps most dangerous form of dissipation is that of sketching. We cannot go so far as some do, who say that the habit of sketching necessarily denotes a vicious and unimaginative temperament; but we are bound to admit that it is a habit which, when indulged in to excess, becomes most pernicious as a check on individual thought and freedom of ideas. When the recollection arises of that ill-starred youth, who said he had sketched everything in South Kensington, but who failed lamentably when called upon

of expression. Here, again, we cannot claim to be extremists, but only the apostles of moderation. One cannot feel any objection to the architect having some knowledge of harmony in colouring, so long as he does not sacrifice to it the keenness of his perception as regards form; if he comes to feel that colour takes first place in his mental range, let him be a decorator by all means, but he is lost to Architecture. Yet, again, let us utter a warning against another pitfall by the wayside: stifle any lurking ambition you may have to become craftsmen. It is so pretty—such a delightful road to destruction—to think if you spend all your spare time in chipping stone, or hammering silver, what charming caps you can provide for your columns, what exquisite lock-plates you can put on your doors. The house may be finished complete by the hand of a real artist without the intervention of the unsympathetic manufacturer. Who could grumble at such an ideal? No

could be managed, but the head man suggested that 6ft. 8in. was ample, or 6ft. 10in. at the very most should do for a small house. Just as the discussion seemed likely to be interesting the door opened, and Rice, a saturnine youth and a junior, marched in, went to his drawing board, and began to work immediately. The governor looked at the office clock, which indicated 2.20, and then significantly at Rice. Rice, however, was at work, and as he took but little notice of anyone, whether governor or assistant, he was unconscious of the indignant glances cast in his direction. Peter Blow, F.R.I.B.A., was annoyed; it irritated him that one of the wheels of the machinery which helped to keep his office running should be so irregular. Having given some directions to one of the other assistants, he entered the private office, slamming the door behind him. "The boss is wild to-day," said Rice to no one in particular—a remark that met with no

response except a haughty sniff from the office lad. Peter Blow sat in his chair with a perturbed air; everything seemed to be going wrong. It wasn't so much Rice coming late that upset him, but as yet he had received but three applications for the vacancy in his office. "If someone doesn't come shortly my growing reputation will evaporate like smoke," soliloquised Peter. "There are all those furniture designs, fittings, and embroideries to polish off, and there is no one in the office capable of doing it." A knock at the door interrupted his consultation with the gods. "Come in," cried Peter; "Well, what is it?" "Oh, a gentleman to see you, sir," Peter glanced at the card with its small inscription, "Arthur Merton." "Merton, Merton! I seem to know that name. Ask him in, James." The boy vanished, his place occupied a moment later by a young man about twenty-two or twenty-three, with a square sort of head, hair that rose vertically from the crown, and a roll of drawings under his arm. "You want an assistant, I believe," he hastily remarked. "Yes, yes; that is so; take a seat, Mr. Merton." Merton seated himself next the window, and, being somewhat excited, took to watching a venturesome spider trying to weave his web between the ceiling and Peter. "Well, sir," broke in Peter, annoyed at Merton's abstraction, "will you let me see some of your drawings, please?" Peter looked through the drawings carefully, and, laying them on the table, said, "You have a rare feeling for line, and the wash drawings are excellent. How about salary?" mentioning the matter as if it was of little importance. "Four guineas a week," answered Merton diffidently, "as it is a temporary job." "Quite so," said Peter, with an involuntary drop of his lower jaw. "I hadn't thought of paying so much, but your drawings are above the average, and there are several jobs you could get to work upon to-morrow. Can you come in the morning?" "Oh! yes," said the young man with but little enthusiasm. "Ah! that will suit me very well. 9.30 a.m. to 6 p.m. are the office hours, and I like my assistants to keep good time. Good afternoon, Mr. Merton."

"MODERN ARCHITECTURE."*

A BOOK FOR ARCHITECTS AND THE PUBLIC.

By H. H. STATHAM.

THIS is an earnest attempt to fill a void in professional literature. As stated in the preface, the idea of it originated in a short course of lectures delivered by the author to the Class of Design of the Architectural Association, at the request of the "Council". The first four chapters give the substance of these; the fifth, a very important one, was also delivered before the same body; and in the sixth the author gives his views on the influence of iron. It is in general cleverly, and in some parts ably, written, full of suggestive remarks that will be found interesting to the non-professional reader as well as to the architect; and it can be fairly recommended to the attention of all who seek to know his views on the subjects he touches upon. The public to whom it is addressed might, perhaps, say: "Oh, we do not care about

architectural books"; but we trust that it will not allow such prejudice to prevent this small mine of thought from being explored. for he is a real enemy to all progress, and would stifle all free expression that would not listen to every qualified man who has something to write on the theory of Art and Practice that might remove a difficulty. We are therefore glad to receive and welcome this book, though not always agreeing with the opinions it contains. The author dogmatizes on some points about which architects and critics are not agreed. He is scarcely just to the fine basilika at Tours; and his praise of the uninteresting front of La Trinité, at Paris, may be considered to be injudicious. In the notice of the church of St. Augustin, at Paris, no mention is made of the admirable attempt (a distinct step at the time of the erection) to use ironwork in an architectural manner as an integral and confessed portion of the building; and, as iron and steel will be increasingly used in most buildings (including churches) whenever the problem is—to obtain intermediate supports which shall be sufficient in strength without being prohibitive in bulk—this is an omission. In reference to what is well termed the "passage aisle plan of a church", and the remark that there are no Mediaeval precedents for treating it: the church of the Cordeliers at Toulouse, which contains most of the elements of this very simple and noble treatment, appears to have been overlooked. Plans are given in juxtaposition of three designs made for the Liverpool Cathedral; and, for the purpose of comparison, the student as well as the Public would have been helped to understand and weigh the criticism, if they had been to the same scale. Some of the opinions are given without any reason—in the manner of the ancient oracles—but, as this book may be reprinted, it is to be hoped that the canons will be clearly enunciated, so that those who come to learn may not go away unsatisfied. The remarks about the planning of doors, etc., in living rooms, are practical, and should be amplified, or a reference to Professor Kerr's work might be given in the next edition. The taste shown in the remarks on the Catholic Cathedral and on the late Rev. H. W. Beecher is questionable. Why should the cathedral not "get completed," as he inelegantly terms it? Perhaps not in our lifetime; a worthy cathedral may be, and often has been, carried on through several lifetimes, as we learn from the past; Cardinal Manning probably had this in his mind when he made the celebrated remark; and the great clergyman of New York should surely have been spared the cheap sneer on page 54. In original church plans that of the Rev. Newman Hall, and one by the late Edward J. Tarver in a N.W. suburb, have been overlooked. The illustrations are as a whole very disappointing. The small scale of the figures reduced from the page size of the Authors' Journal has resulted in a "rotteness" in the hatching which is not conducive to clearness. These are, after all, only minor blemishes in what we trust will be a much-read book; and, when the somewhat slipshod and colloquial language is improved, and some mistakes, such as that on line 26 of page 83, and that about the *terza rima* of the great Tuscan, are corrected in the next edition (soon to appear, it may be hoped), the book will take its place on the shelf of the architectural library. The work is intentionally an essay on modern Architecture. The student will find it up to date. The author has been outspoken in the honest expression of his opinions. We congratulate him on his courage, and trust that it may be rewarded in the manner he would prefer.

H. H. S.

"ST. STATHAM OF THE KEYS."

HIS "QUIET NAP."

INSTITUTES OF COMPARISON DRAWN FROM THE COMPARISONS OF THE INSTITUTE JOURNAL.

[*"Modern Architecture"* is reviewed in the current number of the *Journal of the Royal Institute of British Architects* by F. Caws.]

"One John Ruskin per century is seemingly sufficient."

With this elegant phrase, with its delicate suggestion of commercial colloquialism, Mr. Caws hints that Mr. Statham is a newer, stronger Ruskin, whose style is a

"Happy sort of compromise between the inspired eloquence and glorious nonsense of the greatest of all Art-writers, and slogging, pithy, dead-earnest unaffectedness."

We would gladly learn how "unaffectedness" can at once be "slogging, pithy, and dead-earnest."

In the same review we are told that Mr. Statham's Art is

"Masculine,"

"Eerie,"

"Full of common sense,"

"German mediævalism,"

"Piquancy,"

"Romantic individuality,"

"Sternness," and, moreover, that it is "queer."

Further, we are told that Mr. Statham is *"The Recording Angel of Architecture."*

That "His book is the (Architectural) Book of Life."

That it is an Architectural "Valhalla."

That Mr. Statham is a "self-constituted modern St. Peter."

That "his pen is a divining-rod, separating the architectural sheep and goats" (surely a new use for that much-discredited instrument)!

We are informed on the same authority that *Modern Architecture* is

"Abraham's bosom," in which "are entertained architects of Lazarus type."

This, again, is new. We have heard of many types of architects, but never of the "Lazarus type." Will Mr. Caws explain?

Again, "there is in the book, and those who figure therein, an awkward family likeness to the Institute and its present mode of admitting Fellows."

"While St. Statham of the Keys has been enjoying a quiet nap."

It is unnecessary to add further illustration.

The point we wish to make is that, whatever the judgment as to the result of Mr. Statham's patient industry, a review of this kind cannot be of service to him.

Moreover, the traditions of the Institute surely demand that discrimination, balance, and discretion should characterise utterances, issued under its authority, in its JOURNAL!

This end is not gained by well-meant but undignified references to "St. Statham of the Keys" having a "quiet nap." Even Homer nodded!

THE London and North-Western Railway Company has decided to proceed with the construction of a new station at Lancaster, the cost of which will be £60,000 to £70,000.

* "Modern Architecture: a Book for Architects and the Public," by H. Heathcote Statham, F.R.I.B.A. Price, 10s. 6d. Published by Chapman and Hall Ltd., Henrietta Street, Covent Garden.

NOTTINGHAM COMPETITION.

CEMETERY BUILDINGS AND LANDSCAPE GARDENING.

BY A SPECIAL COMMISSIONER.

THE importance of the subject involved in this competition cannot be over-estimated—a subject which touches all. The more surprising, therefore, it is to find that a mere handful of the Profession ventured to tackle it. Most of those competitively inclined were, doubtless, lured by Cardiff, others were privately engaged. But what are competitions for Municipal Buildings, Town Halls, and so forth, but the stalest affairs when compared to an essentially modern problem, a crematorium and its attendant buildings? There was also the frame to the picture in the landscape gardening, and laying

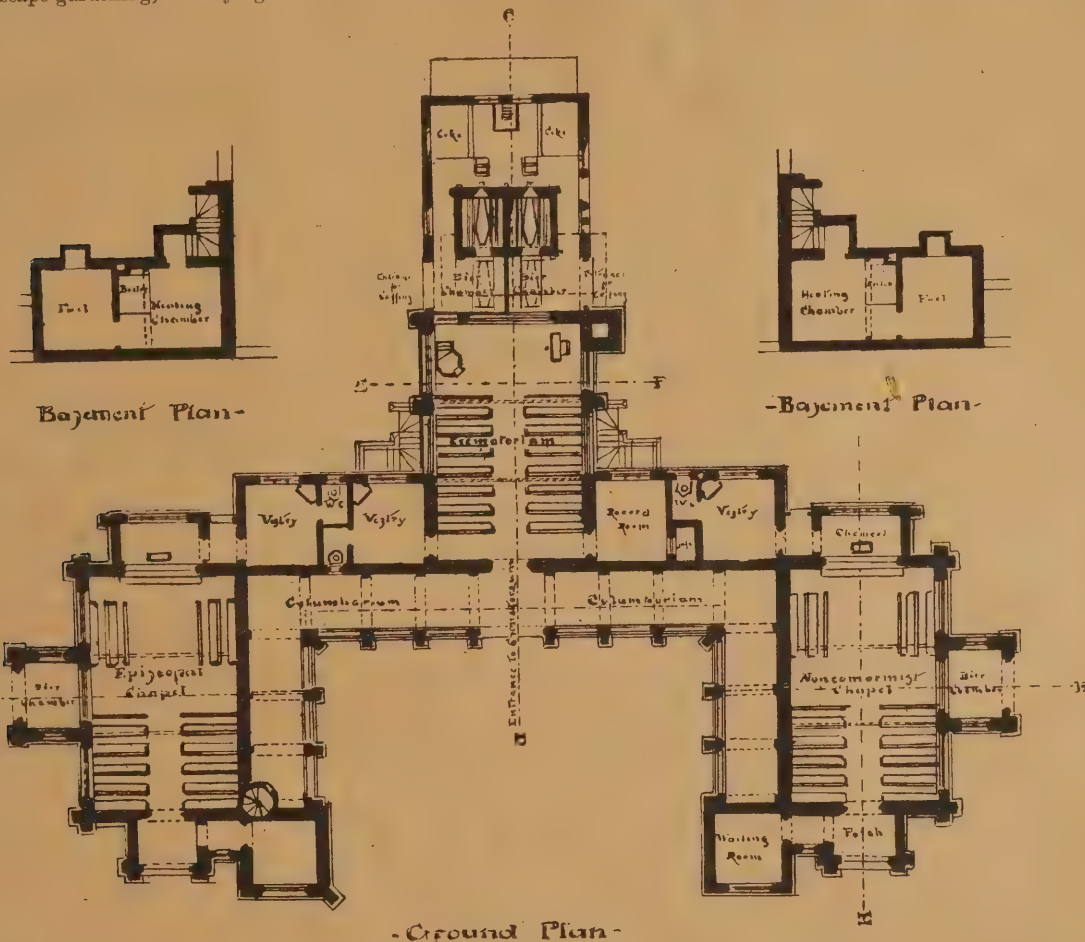
that it is inferior. It has, nevertheless, several qualifications which tend to make it suitable for a cemetery, e.g., a hard, dry, sandy soil, good, and fairly open aspects, and considerable undulation. On the other hand, it is a long and narrow strip of land containing about thirty acres, and has the embankment of the Great Northern Railway on one long side, and the Arnold Road on the other; the two short sides being merely divisional walls in, what is now, a deadly dull cabbage and turnip paradise. The site is by no means quiet, as about 260 trains pass daily on the railway, and these mostly luggage! With regard to the approach road, we need say little. Arnold Road, however, in which the principal entrance is situate, is very irregular, one part being as much as 14ft. below the site, another 13ft. above, entailing an expensive boundary wall.

The conditions, which included two admirable lithographed plans, were creditably drawn up, taking into consideration the fact that the assessors had no voice in the matter. And, as

principles, capable of constituting two bodies simultaneously was required.

The lithographed plan suggested certain positions for the buildings, and it was generally found, after studying the levels minutely, that these various sites were wisely indicated. A main carriage entrance with footways was required from Arnold Road, and another pedestrians' entrance at the Basford, or western, end of the site.

The usual requirements were included in the conditions, and any kind of perspectives were admissible. The premiums in both competitions were £100 and £50 respectively, and the intention is to carry out those placed first at 5 per cent on the cost of the works, provided that the competitor can assure the Corporation that his plans can be satisfactorily carried out within his estimate. Finally, the premiated plans become the property of the Corporation, who stated that they intended to seek the advice of an assessor for each competitor.



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. FIRST PREMIATED PLAN: BY MESSRS. MCKEWAN AND DUNN.

out of the cemetery, completing the *tout ensemble*, giving additional interest and variety, and, in the hands of skilled designers, lending a possible touch of romantic pathos.

No large towns now-a-days can afford to dispense with such a possession as a fine crematorium, for therein lie the probabilities of immediate sanitary reform and consequent reduction of the death-rate. It is no part of our rights, let us recollect, to pollute the earth more than is absolutely necessary. Rather it is our moral duty to regard our possession as a loan entailing certain obligations. Therefore, in spite of several centuries of bad precedents, we are driven to recur to the most ancient method of treating the dead from practical and obviously sanitary reasons. Wherefore, it is clear that this competition is one of moment, and we believe it to be the first ever held for a crematorium.

Basford is a suburb of Nottingham to the north, and not yet much built over. The site, which is on the extreme edge of the city boundary, cannot, however, be described as fine. In fact, it were best frankly to confess

these enjoiners play a primary and highly important part in all competitions, it may be well to give a brief *résumé* thereof.

Clause 3 says:—"It is intended that the competition shall be divided into separate portions: (a) To be competed for by landscape gardeners, for the laying out and planting of the site; (b) to be competed for by architects, for the chapels, crematorium, lodges, entrance gates, boundary walls, and fencing. There will not be any objection to an architect and landscape gardener sending in joint designs, but the Corporation will be perfectly free to divide the carrying out of the work as set forth above." It was also ascertained that architects might compete for both competitions. Although the whole of the site was to be included in the design, the Corporation do not intend carrying out more than half at once. Half the area, roughly, is for the Church of England and half for dissenters. Two chapels were, of course, required, a registrar's lodge and office, a gardener's lodge with tool houses, and a sexton's lodge. Lastly, a crematorium on the very best and newest

We believe the number of the designs submitted was just over twenty, and Mr. Aston Webb, F.R.I.B.A., was duly appointed the architectural assessor, and Mr. E. H. Milner for the landscape gardening.

(To be continued.)

THE improvements in Davies Street have begun, and already certain houses are being demolished to make space for the new entrance at the Oxford Street end. This is an improvement which has long been wanted. Claridge's Hotel approaches completion, and the scaffolding is now all down and decorating has begun. In a few days' time the last of the hoardings in Mount Street, east of South Audley Street, will be down, and then this portion of the street will be finished. Mr. Lehmann's old house in Berkeley Square, which was bought by the late Lord Warwick for £15,000 and afterwards changed hands twice without being occupied, is now being prepared for occupation.



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. FIRST PREMIATED DRAWINGS. BY MESSRS. McKEWAN AND DUNN.

THE INSTITUTE PRIZES AND STUDENTSHIPS.*

A CRITICISM ON THE DRAWINGS.

By ERNEST GEORGE.

I HAVE been invited to make a few remarks to the authors of the many drawings before us, on the subject of their work. Criticism means generally fault-finding, and is at all times a thankless task. You must kindly take my comments in good part, even where you find me wrong in my judgment. With numerous well-executed drawings before us, we are bound to recognise the proficiency that obtains in the matter of draughtsmanship. I suppose when most of the noble monuments of the past were built there were no such accomplished draughtsmen as many of you. It is a good thing to attain facility with the fingers, and a ready method of expressing ideas, and I believe that it helps materially towards design. Yet original ideas are few, while pretty drawings are many, and a taking manner of drawing sometimes conceals the lack of anything to say. The art may become a snare. It is well to keep in mind the fact that architects' drawings are only a means, and not an end. They are not pictures, but they are documents of the architect's scheme; they should convey to his client an idea of the house he is to have; but their first object is to show the craftsman the work that is to be done. The architect who is head and shoulders above the rest of us confesses to the burning of his beautiful drawings after they have served their practical purpose. This is not a custom one would commend. In preparing these drawings, some of you will have speculated on what the assessors desired to see. Taste is a varying quantity, and depends with each of us on the condition of the mind with regard to certain forms or colours that appear to us with freshness or with pleasant associations, or that we see after they have been too often played upon or travestied. Perhaps this is especially felt with certain so-called "Queen Anne" features that were pleasing when first introduced by good hands, but which we have seen done to death. In a street we commonly find the most ornate and richly decorated building is a public house, and we feel that a gentleman's house must be severely plain. Choice marbles, again, are so freely used in restaurants and in sanitary works that, from association, we become afraid to employ a beautiful material that Nature has placed in our hands. We are familiarised with so much commonplace and meaningless

ornament that the eye rests with pleasure on any broad wall-surface, and we are conscious of a reaction in favour of utter simplicity. A cynic has said that life would be endurable but for its pleasures. We feel that the vernacular buildings around us could be tolerated if cleared of all ornaments and futile efforts to please. It requires an artist's hand to dispose and wisely restrain the sculpture or decoration, which becomes a source of delight when it finds its right position. Still, there is a fitness in all things, and if your subject for design be a concert-hall for a wealthy city, or a mansion for a nobleman, you must not apply to it the bare treatment that would be admirable for a barrack.

THE MEASURED DRAWINGS.

For the measured drawings of "Ancient Buildings in the United Kingdom" six competitors for the medal put in a good appearance. The drawings of Clare College, Cambridge, by Mr. T. Tyrwhitt, have been awarded the prize. This interesting building has been portrayed with thoroughness. We are shown its street front, where stone mullions still obtain, though label mouldings have given place to cornices of Italian origin. The river front, though in harmony with the earlier work, has its fully developed sash windows with architraves and keystones. An admirable set of measured drawings of Thaxted Church, Essex, by Mr. Cyril Wontner Smith, receives a medal of merit. In "Kot" we have another careful set of drawings, the cloisters at Norwich. The four sides of these cloisters at first suggest repetition, till we note the interesting transition of styles from the early "Decorated" to the late "Perpendicular." The mouldings of the various epochs are given with care, though the custom of crowding the paper with mouldings makes them not always legible. Other drawings show care, steady work, and ready draughtsmanship. I do not know whether my colleagues are with me, or whether I am right in making the suggestion that it is not desirable to fill up, with full detail, the whole of each elevation, repeating innumerable mouldings or cusps. I think the balance of the drawing can be kept without all parts being carried to the bitter end, to the weariness of the artist. Personally it distresses me to see mechanical repetition. Prize drawings, of course, must not be slovenly or sketchy, and it is perhaps difficult to draw the line at anything short of finish.

THE SOANE MEDALLION.

Of the five designs submitted for the Concert Hall there are points to commend in each, although no one design is considered to reach the required standard for the Soane Medallion. The design "Pan" has style, and there is much that we like in the treatment of the exterior. The arcaded upper story is well conceived, though we think the small niches between the projecting columns are unneces-

sary, and it would be wasteful to put good sculpture in that shady retirement. Above the bold cornice and balustrade we should like the building to cease. We think that a building of this type suffers by a show of roofs. These latter are formed to accommodate the secondary hall, but this smaller hall is worth a better position than it gets in this attic story. In the absence of these roofs, the auditorium might have become an imposing feature in the composition. The plan of this building is less satisfactory than the exterior. Probably the difficulty has been to provide the required seating accommodation, and the hall is injured by its three overgrown galleries. The passages would gain by greater width, both for convenience and safety. The design "34° South" has a well-studied plan. The two galleries are in just proportion to the hall, the passages are of fair width, and the smaller hall is treated with consideration. The elevations of this building are not satisfactory, the proportions and composition of the group are not happy, and the design suffers from many stripes, the eye wearying of rustications from the plinth to the cornice. "Quod erat faciendum" is a design showing thought, and the elevations have a distinct interest. It is not, perhaps, a bad fault that it is very like a church. The square concert room is not a satisfactory shape, and the aggressive projection in the middle of a side wall for a royal box, would not be tolerated by the most loyal of subjects who cared for music. "Cornice" is a bold rusticated block, after the manner of a Florentine palace. The treatment is daring and original, and is not without dignity. The long line of columns on the flank wall would look well but for the two tiers of openings between the columns, robbing the latter of their effect as a colonnade. An arcaded treatment of these balconies might have worked better. Of "Lyra" one feels that it is rather a theatre than a concert-hall, but the circular form has its advantages. The dome has an awkward shape, which is emphasised by the strongly marked ribs upon it. There is simplicity in the general treatment, and we do not blame the design for its broad wall-spaces. With the latter, however, we feel the demand for bolder detail where mouldings and projections appear. There is too much equality about the three rows of cornices and the spaces between them, and we should like more interest about the doorways, which have each a glass shelter over them as their prominent feature. It has been decided that no design is sufficiently satisfactory, both inside and out, to merit the distinction of the Soane Medallion; there is nevertheless, evidence before us of intelligent study and of good work done; and although unsuccessful for the Medal, I am sure you will not look upon your work as wasted. Your time has been well spent on a subject of great interest, and the knowledge you have acquired will one day be turned to account. London

* A criticism on the prize drawings of the Royal Institute of British Architects, read at a meeting held on Monday, Jan. 24th.

is not yet provided with its fitting concert-hall.

THE TITE PRIZE.

"An English Villa and Garden treated in the Italian Style" was, as you know, the subject given last year for the Tite Prize; but the works on that occasion were not considered of sufficient merit to justify the award. The same subject given again has called forth a better response this year from the nine competitors who have entered the lists. Of these schemes, "Andante," by Mr. John Stevens Lee, takes the prize. There is simplicity and propriety about the villa, which in some designs, has too much the character of a large country house. The plan might in some respects be improved. The central hall with columns would have gained much if it had, in its height, included the first floor gallery, which would have opened into it. At present this gallery looks out upon the lead flat and skylight—never a comely prospect. The two passages at the ends of the loggia are unnecessary, and might have been included in the loggia. There is Art in the scheming of the garden, its features having interest without becoming obstructive. The drawing is incisive and clear, giving good expression to the design. To "Heather," by Mr. Thomas A. Pole, a second prize is awarded. It is a good drawing, showing a house with well-proportioned wings sheltering the upper terrace. The balustrade of this terrace is placed on the edge of a steep bank, where grass would not thrive happily, and I think a wall would have been more suitable in this position. A design distinguished by a device (a Circle and Triangle) has points of interest and quaint fancy, and there is good character in the house. The manner of the drawing, perhaps, gives it the feeling of being somewhat crowded and wanting in repose. "Tiber" is one of the less ambitious schemes. It is pleasant and homely, with less effort after features than we find in some of these gardens. The design "White Star" departs from the horizontal and reposeful lines of the Italian treatment. The house is rather suburban in character, and is not quite in sympathy with a formal garden.

The rooms are purposely unsymmetrical, the bay windows in each room being brought to a corner, and one end of each bay being cut off by the wall. The villa does not centre with the garden, and we think it desirable that it should do so, when the formal treatment is adopted. Other designs have their good and their weak points, but I have not criticisms of all that have come before us. I think in devising these gardens a difficulty must have been present to you all; it is that of having no obstacles to surmount in your imaginary garden. In an architectural, or built garden, the incidents that please arise generally from difficulties of level and other problems that have to be fought with; these suggest forms that would hardly occur to one on a clean sheet of paper. There are, nevertheless, many happy devices and suggestions in your several proposals.

THE PUGIN STUDENTSHIP.

For this studentship there is a very creditable show, and the subjects are generally well chosen. The prize is awarded to Mr. de Gruchy, whose merit the Institute has had the opportunity of recognising before, and it is a pleasure to see such work as he sends us. A second prize is given to Mr. Bower, and I am glad to find among his studies the grand tower of St. Mary's, Newark. I do not doubt Mr. Bower has studied also the noble interior of this church. Seeing it again the other day, I was impressed by its dignity, unity, and proportion. It possesses those qualities that are attributed rather exclusively to fine classic buildings. Mr. Fulton gives us good examples of his work. We like the way he has drawn the vigorous detail of the Scotch carver in the screen from Aberdeen. Whilst studying the old examples of carving he looks also to the original types; his thistles and other foliage are well put in, as are the crucifix and figures. Mr. Fulton is the recipient of the Aldwinckle Prize, and we shall be interested to see the results of his Spanish campaign. Before leaving these various groups of sketches I would remark that they are nearly all honest and direct in their purpose of delineation, the architectural details being the points of interest. There is not the attempt we some-

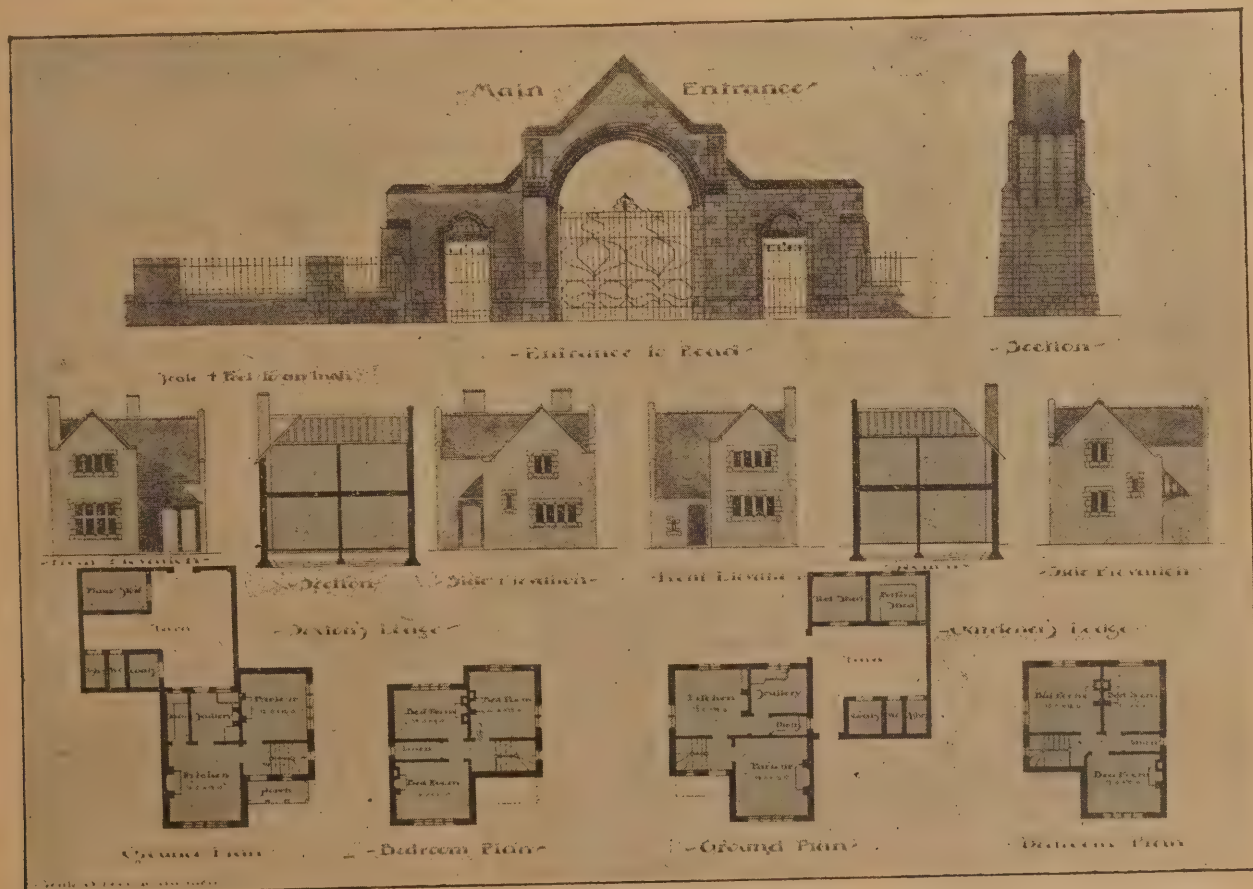
times see to give a fictitious interest by dwelling on cracks in the masonry, or dots and spots suggesting rotten bricks. We have seen these incidents forced to give a meretricious prettiness to architectural drawings.

THE OWEN JONES STUDENTSHIP.

For the Owen Jones Studentship there are but two candidates, and the work does not quite reach the level that has been attained by the late winners of the prize. The studies of ceramic work, including the Arab Hall of the late Lord Leighton, are freely drawn and put in with good colour; there is, however, no range or variety of subject. The other competitor shows greater diversity, but there is a certain harshness and want of freedom about the work, and some lack of harmony and "quality" in the colour, which are drawbacks to the interest of the subjects portrayed.

THE GRISELL GOLD MEDAL.

For the Grissell Gold Medal there are many entries, for the subject of a country church of timber is attractive. The design marked "Stavekirke," by Mr. Harbottle Reed, receives this prize. A wall of timber is unsuited to take the thrust of a roof, so the architect helps it with an inner range of posts, forming an outside aisle or passage. There is not, however, much thrust from this roof, as, although the principal has an apparent arch, there is practically a tie-beam from plate to plate. I venture to think the arch is no help to the design. Several of the schemes show a tendency to form arches, sometimes cutting them out of exceptionally long balks of timber, instead of trusting to beams, posts, and struts, which are the natural forms of wood. There are features we like in the good drawing marked "Emce," but we object to the circular-headed windows with voussiors, a direct following of stone forms. A second prize is awarded to the design "By Lamplight," the work of Mr. W. Stanley Bates. It is a good piece of timber construction, and well-proportioned. The internal design of the roof, with its rather finikin pierced work, is less commendable. In the view of the exterior one feels that the timber and shingle are overladen with lines, to the detriment of the drawing.



GREAT ART WORKERS OF THE CENTURIES.

LORENZO GHIERTI.—ART BRONZE WORKER.

By W. NORMAN BROWN.

THE compound metal bronze was not only one of the first economic products utilised by man, but it was also as subservient to the purposes of art and ornament as it was useful for the common purposes of life—whether for peace or war. It would appear that during the early Oriental and Classic period it was not uncommon to line the interiors of sumptuous buildings with metal plates. The cedar wood of Solomon's temple was, we learn from the Bible, plated with gold, and from Homer and various antique remains it would appear that large plates of bronze, probably with figures in relief, were fixed to the interior walls of palaces.

So, too, there is but little doubt that bronze figures of large size were founded at a very early period. Of such was that

Where the gigantic King of Day
On his own Rhodes looks down—

as Lord Macaulay has it in his "Prophecy of Copy." This gigantic Apollo, which strode over the harbour of Rhodes, and was accounted one of the Seven Wonders of the World, was probably formed of brazen plates bolted together. There is no doubt, however, that many antique statues were cast. During the Middle Ages iron appears to have been preferred to bronze, and, generally, hand work was more in vogue than founding. But with the great Italian Renaissance the metal again came into favour, and the art of casting also. Many of the most romantic stories of the Italian artists of the *cinque cents* enshrined in "enthralled pages" of Vasari and elsewhere, relate to bronze founding. Dreaming of these, "imagination conjures up visions" of Michael Angelo in his grief and disappointment at the loss of a whole year's work by his failure in casting the statue of Julius II. at Bologna; of that equally wonderful genius, Leonardo da Vinci, devoting ten years to the construction of an equestrian statue, doomed to destruction even during his own lifetime; and, lastly, and, perhaps, chiefly, our thoughts turn to Benvenuto Cellini, who has left us so vivid a description of his own labours, his failures, and his triumphs in his difficult art.

The Italian and German artists of the Renaissance appear to have had the highest opinion of bronze as a material for gates of large dimensions, and were very skilful in producing them in France and England at that period. We find, on the contrary, no appreciation or use of bronze for such a purpose, but an adoption of very excellent wrought iron work.

Should any of my readers, who lack the time or opportunity of seeing certain bronze *chefs d'œuvre in situ* on the continent, stroll into the South Kensington Museum, they may there make the acquaintance, through very excellent casts, of the following capital examples of bronze cast plates:

In the Architectural Court is an electrotype copy of the bronze doors of Augsburg Cathedral, South Germany. The costumes and characters in those extraordinary panels of metal work so closely resemble Byzantine ivories of the ninth century that they might well be the work of artists of that school. They were reproduced in electrotype by Messrs. Elkington in 1874.

Beside these stand the bronze doors of the Cathedral at Hildersheim, North Germany. They were designed and cast in 1015 by Bishop Bernward, whose skill as a worker in bronze and in the precious stones was far in advance of his age and country. They are also the work of Messrs. Elkington, and were executed in 1874. In the same court is a copy of the "Porta di San Ranieri" in the south transept of the Cathedral at Pisa. The panel represents events in the life of Christ. It was executed in bronze by Bonanno, a Pisan sculptor, in 1180.

Here also, in the North Court, is an example

of more moment to me in connection with the subject of this article. This is a facsimile reproduction in copper gilt of the famous gates of the Baptistery of Florence, completed by Lorenzo Ghiberti in 1424. These gates are adorned with reliefs of scenes from the Old Testament. The originals are of bronze, and still bear traces of gilding. I shall revert to these grand specimens of artistic founding presently.

Lorenzo Ghiberti was born at Florence in the year 1381. After the death of his father, his mother, Fiore (or, as we should say, Flora) married a goldsmith named Bartolo, who seems to have been the only father whom the little Lorenzo Ghiberti ever knew, and great confidence and affection existed between them. Bartolo was a clever goldsmith, and from him the boy learned the first principles of design. Lorenzo, however, did not confine himself to gold working, but delighted in modelling copies of antique medals, and also in painting, which Gherardo Starnino taught him. He made such good progress in this art that when, in 1400, he had to fly from the plague in Florence, he was fortunate enough to obtain employment at Rimini to fresco some rooms in the Palace of Carlo Malatesta, Lord of Pesaro. While here competition was invited for some large bronze gates of the Baptistery at Florence. Ghiberti prepared designs, and has himself left us the list of his rivals: "Filippo Brunellesco, Simone da Colle, Francesco di Val d'Ombino, Nicolo d'Arezzo, Jacopo della Quercia da Siena, and Niccolo Lambert." He goes on to say, with commendable brevity and emphasis: "The palm of victory was conceded to me by all the judges and by those who competed with me. Universally, the glory was given to me without any exception."

As the producer of the selected design, Ghiberti was employed to cast the gates. Bartolo, his stepfather, assisted him greatly in perfecting his design by judicious criticisms. He was associated with his stepson in the commission for making the doors of the Baptistery, which was given on November 23, 1403, but Lorenzo was bound to execute the more important portions himself. For the rest, beside Bartolo, he had several assistants, whose names have been recorded. He was also bound down to work on every week-day, and to accept no other commissions while the gates were in progress. The Merchants' Guild paid the wages and all expenses. Ghiberti's payment was at the rate of 200 florins a year, with an exceedingly lavish amount.

The doors took twenty-one years to make, and were placed in position on April 19, 1424.

COMPOSITION IN REGARD TO PUBLIC BUILDINGS.

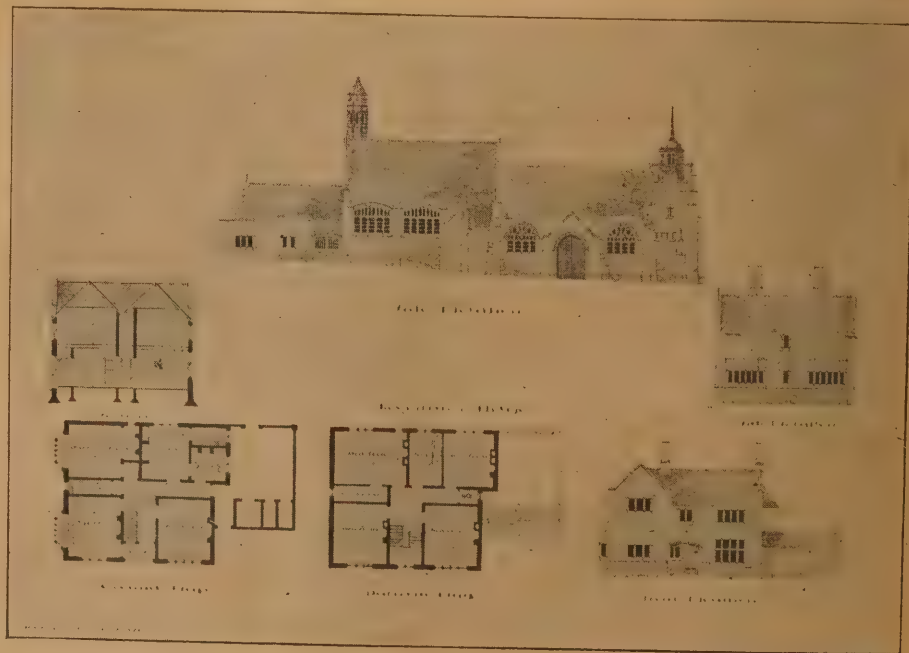
IN discussing Mr. F. T. Baggallay's paper on "Composition in Regard to Public Buildings," read at a recent meeting of the Architectural Association, and which was published in our last two issues, Mr. J. M. Brydon said composition was one of the subjects that laid at the root of all Architecture, but, somehow, it had the least attention. Mr. Baggallay had touched upon the main features which helped to make up composition, but there were one or two points he did not bring forward in a measure that might have been expected. One was

THE INFLUENCE OF MATERIAL

in composition; it always had an immense influence on the form of a building, and naturally, therefore, on the features which made up its composition. The nobler the material, the nobler the composition, and, possibly, the higher as a work of art the building was likely to be. In all marble work—in fact, in all stones—the nobility of the material must of itself—from the capability of working, the largeness of its parts, and the colour they got from it—suggest that they had in their power something to produce a great effect by simple means; far easier than with a material of less nobility, such as brick, or that latter-day abomination—terra-cotta. Probably nearly all the great temples were developed from wooden construction, but immediately they passed from the era of woodwork, the whole construction became a stone construction; hence the great power and majesty in such a building as the Parthenon. If they attempted to erect a great public building in a smaller material than stone or marble, it was more or less a failure, a fact emphasised in several buildings erected in the time of modern Architecture. He thought it was almost impossible to get a great building out of material which was not constructive. Terra-cotta was evidently a material to be used for decoration, as, for example, at the South Kensington Science School, which was one of the typical uses to which terra-cotta could be put. Another example was the great hospital at Milan, where some beautiful terra-cotta work was used in a decorative sense. Then

A GREAT POINT TO BE CONSIDERED

in composition was the site the building was to occupy. A notable instance was the Palace of Justice at Brussels, which was admirably adapted to its site. It dictated



NOTTINGHAM CEMETERY BUILDINGS COMPETITION. FIRST PREMIATED DRAWINGS.
BY MESSRS. McKEWAN AND DUNN.

to them the form the building should take. The Church of the Salute, Venice, was another example; nothing could be more beautiful than the effect of the approach to it by water. With regard to towers, he thought it added to the dignity to see the lines of some of them go right down to the ground. An instance was the Town Hall, at Glasgow, the tower of which rose in great Classic composition from the courtyard, and was seen from various distances rising over the building. But even there one wished now and again to see the tower come right down to the ground, as they would in Wren's churches. In the design of great buildings, too much attention was given to picturesqueness and to what was called detail. Unless a building had good proportions and dignity of parts, and these were arranged in relation to each other, no amount of

PICTURESQUENESS AND DETAIL

would redeem it from utter commonplace. The first principle of all was that the body must be right before its members could be right, and that was the principle which governed composition in Architecture. Another little weakness allied to this striving after picturesqueness, was the want of reticence or simplicity, and a want of restraint. To use a vulgarism, there was a tendency to put "all the goods in the shop window." They should not waste strength and energy in sticking every mortal thing they could think of in the front. He could call to mind one or two instances in which this mistake was exemplified. There was great scope for study in the principles of composition. One of the finest works in composition was the result of Inigo Jones' beginning and Wren's completion, namely, Greenwich Hospital. That was not the only example of designing with a noble material on a wonderful site. If they studied the lines of the building they would see how great an artist was Wren. They should remember the words of Inigo Jones, a master of proportion, who had a contempt for what he called

MERE PRETTINESS AND PETTIFOGGING DETAIL,

and who said that Architecture should be "solid, proportionate, masculine, and unaffected."—Mr. H. H. Statham said he was very glad to hear somebody run a little tilt against the theory that all Architecture was dead at the Renaissance, for he considered that was a complete mistake. Fergusson and others who put forward that theory got hold of half the truth, and treated it as the whole. No doubt the theory of Architecture completely changed at the Renaissance, but since that time there had been a great deal of thoroughly original Architecture. It took some of its detail from antique, but it did not take its design or composition. Commenting upon the lecturer's criticism of Fergusson, Mr Statham said there was no doubt that Fergusson allowed himself to be so far led away by the enthusiasm of the moment as to refer to various buildings in town as the greatest or finest in the world. If they went through his works, they would see that he had one conception. He grasped the fact that the idea and the plan was the basis of the whole design. Fergusson made it a point that a building was to be judged by the conception and the plan, so that he judged by a little more than detail. On the other hand, was not refinement of detail a very good means of judging of a man's refinement of conception and the attention he gave to his Art? In regard to Mr. Baggallay's remarks

IN REFERENCE TO TOWERS,

the speaker expressed a desire to see the lines go down to the ground. He suggested there were occasions when buildings, placed at the angle of two streets, and where the angle formed a very important part, as seen down two thoroughfares, that it was quite right to accentuate the tower, and make it the keystone of the whole building. But he thought the whole question depended upon the site. He agreed with the lecturer that it was important to have a fine staircase, and also as to the difficulty of getting one in England, where it was considered a waste of space. He

likewise agreed that too much attention was paid to picturesqueness, and he was afraid it arose from the tendency to do so much by competition, in which there was an inclination to catch the eyes by picturesqueness rather than by well-worked-out plans.—Mr. A. T. Bolton said, with regard to the composition of the German Parliament House, to which reference had been made, he remembered it was stated in a paper at the time the building was opened, that it was not the fault of the architect but the committee, who insisted on the central feature being lowered some 15ft. from the original design. Whatever they said about Architecture nearly always resolved itself into ideas according to their own mind. With regard to

FRENCH BUILDINGS,

he thought it was a question of education; the detail was about as fine as it could be. The whole idea of the French was very arbitrary, viz., "we have got certain models given to us, left by Greeks and Romans, and the thing is to apply them." He did not think it necessary to always have a great central feature; in fact, some buildings were exceedingly fine with purely horizontal lines, for instance, the Pitti Palace. The idea of not showing the roof of a building was, of course, Wren's, who thought no roof ought to be seen except the spherical. Mr. Brydon had been very hard in his criticism of bricks. The simple explanation was that bricks did not always have a fair chance. Some very dignified buildings had been erected in brick; for instance, the Spanish palaces at Saragossa, and certain old Roman walls which had a grand effect. The reason why bricks were not so successful was that they were used with stone detail. Every brick had a moulding on it, so to speak, and each brick got a certain emphasis, and in fine examples of

BRICK ARCHITECTURE,

bricks were thrown in like cubes of mosaic work, and they got a noble effect.—Mr. A. S. Flower observed that there was a great deal to be said on both sides as to the question of towers, but if it came to voting he would prefer to vote for the author of the paper. In most cases they got a better effect if the line was not carried right down to the ground. In Salisbury Cathedral and other buildings they had good examples. In many village churches, where the tower went down to the ground, the effect was wonderfully improved by tombstones and foliage, etc., in front of the tower. He thought a tower rising from the centre of the building was very often much better than one like the Victoria, which ran right down to the ground. In this connection the central tower of Lincoln Cathedral was greatly spoilt, it having the appearance of falling to pieces at the top. There was no cornice, and it was like a bundle of reeds falling apart. They hardly got a church design now without seeing the tower simply

A BATCH OF BUTTRESSES,

and scarcely any cornices at all. This idea of doing away with connecting or tying lines seemed to be the fashion in the newer kind of design, and it was a perverse fashion that he would like to see done away with as far as possible.—Mr. Banister, F. Fletcher recommended students to read Burke's essay on the "Sublime and Beautiful," in which were many points connected with beauty in Architecture. He thought Mr. Baggallay's paper should lead them to consider why they did not study composition, for it was a most valuable part of the architect's Profession. He suggested that a class should be formed on the subject.—The President (Mr. H. W. Pratt) said the site was at the base of all composition, more especially in town Architecture, rather than in the open country. With regard to the influence of material in composition, it was not only a question of material, but also of colour, which, of course, was mixed up in the effects. Whatever they said about brick, they always had it with them, and, therefore, must always take it into consideration. As a material so largely used, they could not always look upon it as a decorative material, but where used in connection with stone it did largely affect the compo-

sition, and might greatly mar the composition of a building unless its use was very carefully considered. As to Mr. Baggallay's remarks about

THE REPETITION OF FEATURES

where there were a number of towers, he thought that applied more to towers than to domes. Therefore he would differ from the lecturer if he applied the same rule to domes as to towers. Upon the question of picturesqueness and detail there was a feeling that in smaller buildings there was not much chance of composition, and, having nothing to give any particular feature to the building, they were tempted to go in for quaintness and picturesqueness, to the exclusion of the grander ideas of conception. With regard to the smallness of detail, there were buildings in London which, in his opinion, had been spoilt on account of the detail being so very small. He thought they could have refinement of detail, and at the same time boldness. It was the pettiness of detail which spoilt the effect of a building.—Mr. Baggallay, in acknowledging the vote of thanks accorded him, said he must confess he had overlooked the fact that material did influence the general composition, through the details, as it were. In regard to a tower, he thought he stated in his paper that it would loose in effect unless carried to the ground. If they wanted a fine tower, no doubt they would have to carry it to the ground, but if they were thinking of the whole composition, he would adhere to his previous opinion, that the tower should be placed behind, or where it would form a central feature of the whole building, and not astride on the corner, or even where it was a prominent junction of two streets. He purposely did not quote Greenwich Hospital because it was contrary to his theory for a central feature. It was a fine design, no doubt, but one of those exceptions to the rule which it would take an Inigo Jones and a Wren to bring to perfection. He would not advise anyone to put up a building, so that they got two wings and could see right through them.

FERGUSSON'S BOOK

was wonderful, and gave many ideas, but he was sorry it was recognised as one of the standard works, because he was sure it was dangerous to amateurs and young students, who really did not know how to sift the good from the bad. He wished someone would write something else to take its place. He (the lecturer) had perhaps exaggerated his contempt for detail, but at the same time he would point out that they would get refinement of detail if they used the old work instead of trying to invent new for themselves. There was a feeling in England that square flat domes were ugly features. He had spent some little time abroad, and might be more or less prejudiced, but he doubted if they were always ugly features, and thought English architects might use them sometimes. He agreed they could not have a really great building if they erected it in brick, on account of the smallness of the material. At the same time they could not regard brick as only a decorative material.

The Public Works Committee of New South Wales has decided that it is not expedient to erect new Parliament Houses for the Colony. The committee recommends an expenditure of £15,000 for carrying out a scheme by the Government architect for improving the present buildings.

The demolition of the old buildings in Church Street from Orchard Street to Messrs. Webster and Styring's new premises removes another bit of "old Sheffield." The corner house contained a room with a remarkable gold ceiling, the pride of the occupier, who lavished money upon it as men will do in prosecution of a fad.

A STAINED glass window has been placed in the Abbey Church of Minster-in-Sheppey to commemorate the Diamond Jubilee. The window depicts Queen Sexburga, widow of Ercmbert, King of Kent, who founded the Abbey in the year 664, standing in an open field arrayed in her robes as an Abbess, and holding her crozier in her right hand.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
February 2nd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE remaining vacancies at the Academy—two R.A.'s and one A.R.A.—will be filled up to-day (Wednesday). It is expected that a sculptor will be promoted, though there are five R.A. sculptors already—Messrs. Armstead, Brock, Ford, Gilbert, and Thornycroft. There are only two sculptor A.R.A.'s, Mr. Bates and Mr. Frampton, and the latter is the favourite. For the other vacancy, the Academy having got its architect, it is thought a painter will be advanced, and the popular candidate seems to be Mr. Leader, A.R.A., an admirable choice. Mr. Seymour Lucas would be the alternative, and he made so good a fight on the last occasion that his friends are very sanguine of his success.

THIS winter has been remarkably favourable to outdoor building operations everywhere and the new block of the Admiralty buildings has made rapid progress. The foundations have been got in, and the superstructure is now approaching the level of the first floor. The foundations have proved more troublesome than in the previous block. Loose, watery gravel covered the London clay to a considerable depth, and when the difficulty of dealing with the water had been overcome and the clay reached, it was found to slope down towards the river bed in a very troublesome manner, necessitating the carrying down the concrete in steps. However, all has been successfully carried out, and the new building is rising from a kind of watertight tank. The old edifice close at hand was not planted the same way at all. It rests not on the London clay, but on the top of the swampy ooze and gravel. Why it has never sunk into it is something of a mystery. There is supposed to be a large amount of British oak underneath it, and it has probably been tied together by iron girders. At any rate the old ship floats, and will continue to form part of the re-constructed Admiralty.

At a special meeting of the Morecambe District Council the twelve competitive schemes for the sewerage of Morecambe were considered, and eventually that submitted by "Forward" was adopted. The scheme will serve for a population of 60,000, and will include Bare and Torrisholme. The estimated cost of the works is £39,227 10s. 7d., exclusive of wayleaves, engineering, or land, with an estimated annual working expense of £620 2s. 6d., estimated for a population of 45,000. To this must be added the cost of the septic system,

which it has been agreed to adopt, and which will form a part of the scheme. The successful competitor is Mr. H. B. Nichol, C.E., 60, Corporation Street, Birmingham. The cost of the various schemes submitted varied from £19,000 to £66,000.

THE proposal that a bust of Lord Esher should be erected near the Appeal Court in which he presided is accompanied by a complaint of the scarcity of statuary in the Law Courts. Sir George Jessel is the only judge to whose memory a piece of sculpture has been erected in the Royal Palace of Justice. The suggestion that the building should be adorned by statues and busts of great lawyers has much to recommend it; but it is in its possible developments that its chief attraction lies. Why should not the walls of the courts be adorned by appropriate pictures from legal history?

At the meeting of the R.I.B.A. on Monday next, 7th inst., Mr. Edwin O. Sachs will read a paper on "The Housing of the Drama," with special reference to subscription and endowed theatres. The synopsis foreshadows a very interesting and instructive lecture on buildings devoted to the drama as distinct from opera or other forms of entertainment. A large collection of drawings and photographs of the principal playhouses of Europe will be exhibited. This collection will include work by the following past or present honorary corresponding members of the R.I.B.A.:—Charles Garnier (Paris), Baron Hasenauer (Vienna), Ferdinand Felner (Vienna), Victor Schroeter (St. Petersburg), G. Basile (Palermo), Gotfried Semper (Dresden), Von Ybl (Budapesth). Several gentlemen prominently associated with the drama and the stage have been invited to participate in the discussion.

CONSIDERABLE alterations are being made in Mr. Bischoffsheim's house in South Audley Street. The bow window facing Deanery Street is being taken out and the room lengthened; while the large glass conservatory at the back has been removed and a more elaborate one is to take its place. Various other changes are being made.

THE City and Waterloo Railway, which will give the London and South-Western Railway direct access from the Waterloo terminus to the heart of the City, will shortly be opened for traffic. The line itself was completed some time ago, but delay which could not be avoided has occurred, both by reason of the dispute in the engineering trade and also in connection with the enormous amount of underground work which has had to be undertaken by the Central London Railway Company at the new station opposite the Mansion House.

THE Queen, it is stated, meditates making some improvements at Osborne. Her Majesty's architect has placed certain plans before the Queen in harmony with her suggestions. As a result the work will, in all probability, be proceeded with as soon as her Majesty has vacated the mansion for her next visit to Scotland. Another scheme of the Queen is an addition to the cottages on the royal estate, but apparently this has not been finally decided upon.

MR. JOHN EDWARDS-MOSS writes, calling attention to the possible ruin of Henley involved by the provisions of the Great Western Railway (New Works) Bill. The Company in question propose to make a new line from Marlow to Henley, and to construct a bridge over the river 21ft. 6in. above water level. It is understood that the present Henley Station is to be devoted solely to goods traffic, and that a new station is to accommodate passengers on a site near the Grand Stand.

THE West Ham School Board has erected new offices in The Grove, Stratford, from plans by Mr. W. Jacques, the architect to the Board. The building has cost, exclusive of the electric light installation, close on £14,000. The

principal apartment is the Board room, 35ft. by 40ft. It has a low octagonal dome, each of the eight sides of which is fitted with a semi-elliptical window glazed with coloured glass. One end of the room, separately approached, is allocated to the public. The members will be seated at separate desks arranged in a semi-circle in front of a dais for the chairman and principal officers. The floors throughout, and the greater part of the roof, are of steel and concrete, the paving of the corridors being of mosaic.

THE Battersea Vestry has opened some municipal buildings which are believed to be unique in the Metropolis. Since October, 1895, the vestry of this portion of London resolved to execute all its public works without the intervention of contractors. Since that date twenty-six schemes of a varied nature—including roadmaking and paving works, sewer construction, the erection of new buildings, and the alteration and repair of existing structures—have been carried out by the Works Department of the Vestry, at a total cost of nearly £22,000, and in only three cases has the cost of executing a scheme exceeded the estimate prepared by an independent surveyor. The amount of the excess in these instances made a total of £204, while, on the other hand, the sums by which the cost fell below expectation in the remaining cases amounted to £2062. So satisfied was the majority of the Vestry with the result of its experiment, that it determined to go beyond any other similar authority in London, and to effect the complete exclusion of the contractor. It is with this object that municipal workshops have been built, at a cost of £4688. To this is to be added $\frac{7}{8}$ per cent. as the proportion which it has been decided that the Works Department shall bear of the cost of the official staff of the Vestry, and an expenditure of £1506 for machinery and £665 for wood-paving raises the total cost to £7210. The new shops form a plain, substantial building 300ft. long and about 25ft. wide. For the greater part of its length the structure is of two storeys, and in it are provided shops for carpenters, joiners, wheelwrights, plumbers, smiths, engineers, painters, masons, and harness-makers, together with a mess-room, an office, and a large covered shed.

A PROPOSAL has been made for the erection of a memorial to the martyrs burnt at the stake in Canterbury during the reign of Queen Mary. The committee concerned have secured a rectangular site, with a frontage of 100ft. to the Martyrs' Field Road. The monument, a granite obelisk, on a marble plinth and rock base, will stand on the spot traditionally associated with forty of the Marian executions, and the space will be planted and inclosed.

THE reredos in Bristol Cathedral, as a memorial to Bishop Ellicott, will be executed by the son of the late Mr. Pearson, R.A. The design shows an elaborate structure in stone upwards of 17ft. wide and 27ft. high. The Crucifixion, with SS. Mary and John, occupies the centre niche of the upper portion, and other niches contain figures of saints and angels. The centre niche in the lower portion will contain a representation of the "Presentation in the Temple," and on the other side will be the "Blessed Virgin and St. Gabriel." A panelled and traceried screen, 11ft. high, with buttresses and pinnacles, separates the eastern bay of the choir from its eastern chapel, flanking the reredos on either side.

THE kiosks are now well on their way as a feature of London street life. Two or three have been put up experimentally between Tottenham Court Circus and Chancery Lane, and others are to follow as fast as the "Streets Syndicate, Limited," can manage it. It is to be hoped (says the Daily News) that the vestries will walk warily before they give extended powers. After all, the space with which they deal is space that belongs to the entire public, and there is none too much of it as it stands in our narrow thoroughfares. As it is we are losing some of it every day, what with fire stations, cabmen's shelters, fire

alarms, orderly boxes, post boxes, and sand boxes, and all the rest of it. We hardly realise how much of the use of the streets for ordinary purposes of locomotion we have lost of late years. If we do not watch it we shall soon have to pick our way between two lines of booths. The public authority seems still to be in search of a principle for such concessions. The clear principle is that of indispensable public uses; and the time is coming when it ought to be rigorously applied. Can we rightly be called on to suffer further privations for the sake of having a cigarette or a nosegay ready to hand at every street corner? It is questionable.

THE Mercers' Company and the Gresham Committee are having a niche prepared on the south wall of the ambulatory of the Royal Exchange for another mural decoration. This will make the fifth of the eight works which different donors have promised already. The subject of the new panel is an interesting and historical episode, "The Opening of the Royal Exchange by Queen Elizabeth on horseback." The painting is the gift of the Mercers' Company, and the artist is Mr. Ernest Crofts, A.R.A.

A good deal of interest has been aroused in reference to the Boadicea monument which has been temporarily fixed on the Victoria Embankment. It is the work of Thomas Thornycroft, father of the present R.A., and is the gift of Mr. John I. Thornycroft. In order to ensure the choice of the best position, a plaster cast has been erected on the suggested site. A chariot, represented as made of wicker, with wheels of solid wood—the traditional scythe blades sticking in the axle—is drawn by a pair of furious horses. In the car stands the gigantic figure of the Queen, her arms uplifted in passionate appeal, the right hand grasping a spear. On either side are crouching her two daughters, nude to the waist. The flying manes of the horses and the forward-leaning figures indicate the speed of the car. It will be seen at once that, striking as the group is, the sculptor has not striven after historic accuracy. If the British Warrior Queen be indeed a real person—and so much, at least, history is prepared to concede—she was unmistakably a savage; far enough from the lady-like woman represented here. The conception is ultra-modern; but to be tolerable at all no doubt it demands idealisation.

RECENTLY a meeting of the ratepayers of the wards of Cripplegate Within and Without was held to consider the report of the Cripplegate Ward Fire Committee, who stated that, after full consideration of the many plans submitted to them, and after waiting on the Commissioners of Sewers, they had unanimously resolved to urge on the Corporation of the City of London the following proposals:—(1) The widening of Jewin Street on the north side; (2) the forming of a central Fire Brigade station; and (3) the forming of a new street in lieu of Well Street and Hamsell Street. The meeting of ratepayers adopted the report.

It was not supposed till lately that the ancient Mexicans were so far advanced in civilisation as to make terra-cotta statues. One has been discovered in a cavern by an Indian, and is now in the U.S. Museum of Ethnology. It is 5ft. high, and dates from before the Spanish conquest. The figure was moulded in three parts, head, trunk, and legs, which are skilfully put together.

THE Princess Louise and the Marquis of Lorne visited the works of Mr. J. Thompson, Peterborough, a few days since. Some specimens of carving were brought under the notice of the visitors, among them being a triptych for Sledmere Church, Yorkshire, which is being rebuilt by Sir Tatton Sykes. The triptych represents the Crucifixion and the twelve Apostles. It was designed by Mr. Temple Moore. A pulpit in oak and some elaborate tracery fronts for choir benches for the same church were also exhibited, as was a richly-carved oak pulpit intended for St. Saviour's, Southwark, and designed by Sir Arthur Blom-

field, R.A. The attention of the visitors was also directed to some carved oak choir fronts for Burnham Thorpe Church, Norfolk, as well as to a model of Peterborough Cathedral. The Princess was especially interested in four figures of saints carved in Carlisle stone, and intended to be placed in Sledmere Church.

THE Manchester Art Gallery Committee have come to a saner conclusion than that which recommended the abandonment of the autumn exhibition, which has been held annually since 1823. It will be remembered that last October the committee gave it as their reason for this suggested step that the constantly growing permanent collection, housed in the City Art Gallery, had greatly encroached upon the space available for the autumn exhibition; and although, by structural alterations, three rooms had been added to the galleries since 1882, it had become impossible to accommodate the Art Exhibition, except at the cost of crowding the permanent collection (now valued at £50,000) into little more than half the space needed for its satisfactory exhibition. No little outcry was raised in Manchester against the suggested abandonment; and after devoting three months to the reconsideration of the matter, the committee have arrived at the conclusion that the case may be met by the provision of additional accommodation! The only wonder is that such a course should not have suggested itself to them before.

IF variety be a reliable factor in success, the forthcoming exhibitions of arts and crafts at the Walker Art Gallery, Liverpool, should be a successful one, on account of the number of supplementary exhibits to be included. The Indian and Indo-Persian decorative Art, selected from the Indian Museum at South Kensington, will occupy, most probably, the whole of the "Grosvenor" room. Other rooms will contain drawings by the members of the Liverpool Architectural Society.

A CORRESPONDENT sends us the following cutting from the Melbourne Argus: "Mr. Lloyd Tayler, F.R.I.B.A., who has recently returned from a visit to Europe, gave an interesting address on the comparison between English and colonial Architecture, in which he gave the superiority, both in design and workmanship, to the colony. On account of the suburban residences in England being built mostly on leased ground, they were constructed in such a 'run-'em-up' style that they barely lasted out the expiration of the lease. The metropolitan sewerage scheme when completed would be, he considered, in advance of anything of the kind in other large cities in Europe." Comment, adds our correspondent, in this case is needless.

THE East Kent Times says: "Some of our municipal friends are making, it is averred, another effort to contribute to the public gaiety by a suggestion to send out a Roving Commission on Surveyors. Disdaining to follow the methods ordinarily adopted when an appointment of this kind needs to be filled, they are credited with the intention of sending three of their number—presumably experts—upon a sort of personally conducted tour in divers parts of the earth with the object of inquiring into the practical abilities of some of the candidates. It is understood that the scope of their investigations—the 'terms of reference,' to be more correct—are practically unlimited, and that the pedigree, age, private character, and birth-marks (if any) of the respective candidates will be made the subject of rigid inquiry."

JUDGING from the pronounced success of the first of the series of Fine Art Exhibitions held there last season, Dresden promises to become an important competitor with Berlin and Munich as an art centre. Not only were the works exhibited representative of the best from all nations, but unwonted care and attention was bestowed upon the hanging of the pictures and the grouping of the sculpture. The usual method of laboriously fitting vast numbers of different-sized frames together in

such a way as to leave scarcely a square foot of the wall visible was abandoned in favour of but two rows of pictures with sufficient space between the frames. Each gallery, moreover, was arranged as nearly as possible in the manner that a private collector of taste would arrange his house; pictures, sculpture, and works of applied art being intermingled so as not to weary the eye with the presentation of an endless surface of one kind of work. Considering that Dresden has not as yet earned a reputation as a picture "market," the promoters of the exhibition have reason to congratulate themselves upon the fact that works of art to the value of nearly £18,000 were sold. The next exhibition will be held in 1899.

THE monument to Jules Anspach, the burgo-master who was the Hausmann of Brussels, has been unveiled in that capital. It is as gorgeous as the use of marble, bronze, gilded bronze, red granite, and blue and grey stone can make it. And this prodigality of materials, always rather a dangerous experiment, has been combined with one still more risky, the intrusting of the work to several different hands. The result is a lack of unity and repose in this "busy" and somewhat garish erection.

MR. WALTER CRANE, lecturing at the College of Preceptors on "The Language of Line," said one of the earliest languages was that which took the form of signs, in which men depicted their views by hieroglyphics. The language of line was also associated with Decorative Art, in which it attained its highest form. In its graphic developments it imitated the facts and forms and service of language. The signs used in the early ages were in many cases in vogue at the present day, and from many of the characters of the ancient sign-writings we were able to obtain glimpses of the dead races. Even some of the letters of the English alphabet had been derived from the hieroglyphic system of the Egyptians. The graphic expression of lines had become a means of delineation of character, and a faithful chronicler of temporary life, manners, and history. There was a great increase of illustrations in literature, especially newspapers, and he expressed surprise that no one was enterprising enough to try to start a newspaper depicting the news of the day in the line language pictorially.

SUPPLANTING the usual winter exhibition of pictures and sketches by members, which has somewhat prematurely vanished from the walls of the Royal Water-colour Society's Gallery in Pall Mall East, comes opportunely a most attractive collection of works in water-colours by the late president, Sir John Gilbert. This does not pretend to be an exhaustive display of the versatile master's life-work, since nothing is here to show his hand as a painter in oils, and even the display of water-colour paintings, sketches, studies, and drawings is necessarily restricted by the wall-space at command. Still there is to be found in the Society's gallery ample material upon which to base an estimate of Sir John Gilbert's facile and brilliant, if hardly very profound, Art.

THE Visiting Committee of the City Lunatic Asylum have presented to the Corporation a report on a reference to inquire whether some reduction could be effected in the estimate of £70,000 for carrying out certain improvements in the Asylum at Stone, near Dartford, required to be made under the provisions of the Lunacy Acts. The original estimate for the works was £46,770, to which the Corporation agreed, but, when the tenders came in, it was found that the lowest was about £70,000. The visiting committee applied for authority to raise this sum instead of the smaller, by rate to be levied in the City, but at the instance of the late Mr. Alderman Halse the Common Council sent back its report for revision. It has, however, found that, due regard being had to the efficiency of the improvements, while it was possible, by using inferior materials in the construction of the chapel, to effect a saving of £2400, they could

not recommend any reduction in the estimate. The cost of converting the existing chapel into a recreation-room would be £1329, and the erection of a new chapel £8716. In the asylum chapel all the seating accommodation must be on the ground floor—thus materially increasing the expense—and the Commissioners of Lunacy had insisted on a larger seating space per person being provided than in an ordinary chapel, in order that the patients should not be in the least crowded. The visiting committee, therefore, reluctantly adhered to the increased estimate of £70,000. The Corporation, at the meeting at which the report was considered, adopted this recommendation, but referred the question of extending the period over which the money should be raised by county rate to the County Purposes Committee.

LECTURING ON "Humour in Art," at the Athenæum Hall, Glasgow, under the auspices of the Scottish Society of Literature and Art, Mr. J. H. Ohea said humour was in all art. The earliest specimens of art which came to us from Babylonia, Assyria, and Egypt were all tainted with it, and it must have been unconscious humour, because the specimens that had come down were almost invariably in the form of monumental Art, and were the effigies of great people, with whom it would have been dangerous for the artist to have indulged any private taste for humour. Greek Art was so perfect that there was no unconscious humour in it. The Greeks had a calculated fun which found expression in masks. When the Romans overcame the Greeks they stole the Greek artists and debauched them with luxury; but the combination of Greece and Rome produced the beautiful Græco-Roman Art, and when Rome in turn was conquered by the Goths her civilisation was overwhelmed and her art destroyed. Curiously the barbarian Goth, under the influence of the sunny South, became an artist himself, and created a new art, which found expression in raising great minsters and cathedrals, imitative of the groves in which their forefathers worshipped. This Goth, having turned Christian, became a great devotee, and there was not much humour in him, but the cathedrals, however, did show some samples of humour, which could not be altogether repressed, and it usually took the form of caricatures of the gentlemen who used to pray or snore in the cathedrals. The lecturer touched on the period of the Renaissance, in which, he said, great numbers of artists adopted humorous designs as a profession, and this had continued down to the present time.

"No other town in South Africa just now can show such an amount of progress, or surpass Bulawayo in its building operations," says the Rhodesian Review. "All temporary structures are being pulled down, and their places occupied by cut stone and brick edifices, some of a high-class order." A few examples are given, such as the Wesleyan Church, being built at a cost of £4000, with a point gable supported by four large stone columns, each column consisting of a solid block 7ft. high, having capitals of the German composite order. The church will be lighted with electricity throughout. A fine block of buildings is in course of erection for the Town Stands Syndicate, to order of Messrs. Macauley, Tompkins, and Co., and is situated between Fort and Jameson Streets. It will consist of offices and chambers, and is estimated to cost about £6000. The Umgusa Estate Hotel is being erected in one of the suburbs, and when completed is stated to eclipse all rivals in or around Bulawayo. It has a verandah of 15ft. in depth right around the building, and a grand dining-room, with other ample accommodation. Another hotel is nearly finished in town, namely, the Imperial, which has a dining-room 40ft. by 30ft., commercial-room, offices, sitting-room, bar, and two smoking-rooms. On the upper story will be the billiard-room, bedrooms, and bathrooms. This structure will cost £8000. Mr. Byrne has in course of erection an extensive and handsome drug store, the front to be composed of gun-metal and plate glass, specially manufactured by Messrs. Haskins

Bros., of London, and of a highly ornamental and elaborate design. This will cost £2000 for erection. The Rhodesian Mining and Finance Co. have in hand the erection of a block of imposing buildings on one of the best sites in Main Street, adjoining the Post Office and Stock Exchange, which will cost £10,000. The main building has a red stone front relieved with white stone dressings. There are two floors, and the offices are lofty, having a height of 12ft. These are only some of the many building enterprises now in progression, and as soon as the price of transport becomes reduced many others already projected will be proceeded with.

In a letter to the Times, appealing for funds for the restoration of Bow Church, the Bishop Suffragan and the Archdeacon of London state:—"A disaster has befallen the ancient parish of Bow. Its parish church, one of the oldest in London, from time to time patched and repaired, is now pronounced unsafe by Sir Arthur Blomfield, and has been closed during the last sixteen months. In September, 1896, the roof of the chancel fell in. The original structure, although tottering to decay, still remains a correct specimen of the Architecture of the early part of the fourteenth century, and the tower forms a noble object in the middle of Bow Road, the whole length of which it dominates. A temporary iron church has been opened, holding 800; but the duty of restoring the old parish church is obvious. A sum of not less than £5000 would be required for this purpose. It is impossible to acquiesce in the collapse and ruin of an important church of 1181 A.D. in one of the most crowded parts of the metropolitan area."

At a recent meeting of Freemasons at Glasgow, Messrs. James Chalmers, architect, and E. C. Morgan, builder, gave a Masonic explanation of the design of the crypt of Glasgow Cathedral. Mr. Chalmers, referring to the recent controversy upon the subject, said that no architect, however eminent, had been able to explain the motive of the man who designed the crypt. It was evident the explanation could not be found in architectural routine or religious symbolism. It naturally remained to consider whether or not Freemasonry among its many secrets contained a solution of this very intricate but interesting problem. No doubt the cathedral was full of Masonic symbols, and it was a question for decision whether the design could be explained by religious symbolism, as we now knew it, or required the light of Masonry. It was reasonable to regard the original architect as a Freemason. Mr. Chalmers showed early documents held by Masons, such as old constitutions and companionships and other ancient societies, which there was reasonable ground for believing existed in the thirteenth century. —Mr. Morgan dealt in detail with a comparison of the plan of the crypt with that of Solomon's Temple, and expressed the opinion that this was the key to the design. He also showed wherein some of the most valuable symbolisms could be found in the crypt.—Mr. Chalmers, in turn, stated that he had extended inquiries to the nave and lady chapel of the cathedral, and had found more advanced symbols.

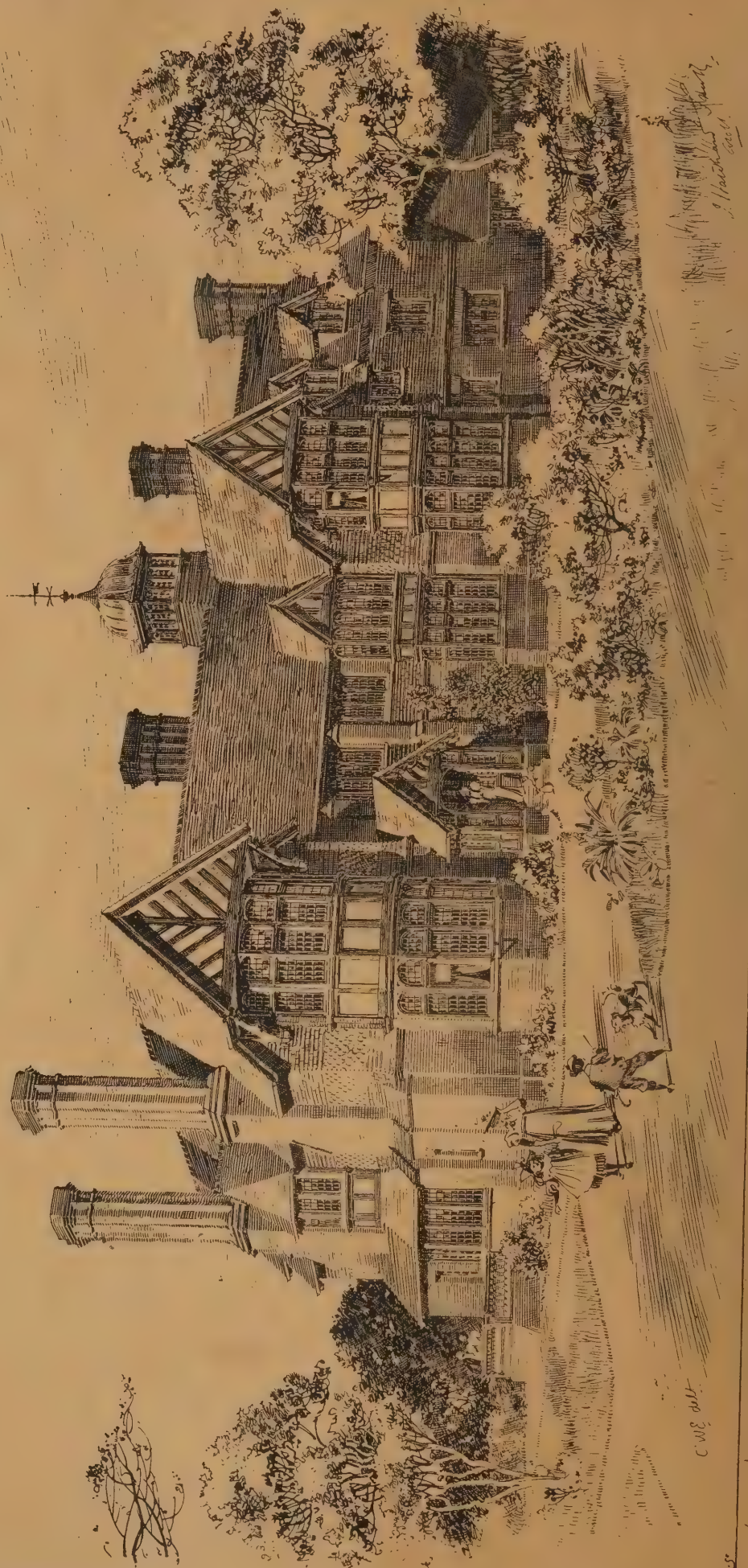
A CITY Surveyor, writing on "the very insufficient mode of planning and constructing the great majority of city warehouse properties," says: "The first matter that I consider calls for attention, and which should be insisted upon in the case of all warehouses and manufacturing premises, is as regards roofs of such buildings. Surely all roofs should be of iron and concrete construction, and all roof lights of metal. The present employment of fir rafters covered with slate, and deal dormers and skylights with lead flats and gutterings, is to be condemned, inasmuch as such roofs are attacked and destroyed in a few minutes by a fire at opposite or adjoining premises. The second is some restriction as to internal areas and wells for light and air. What chance do buildings at present have when within some 12ft. of the large lights at the back of the

premises an opposite warehouse is well alight? The opposing windows should not be less than 25ft. apart, the frames and sashes should be of metal, and they should be covered by an iron shutter, which should be always closed in the evening, and if necessity arose. All ceilings should be made and plastered in asbestos or other fire-resisting cement on wire laths, and matchboarding should on no account be allowed. All constructional ironwork in floor girders, columns, and stanchions should be entirely and solidly encased in concrete of a specified thickness. Staircases, if not of stone or concrete, should be of hard wood on metal strings and carriages. All staircases and passages should be enclosed on each floor with partitions of metal and plastering, and no wood should enter into their construction excepting as to the doors, which should be of solid and hard wood. I could mention cases within my own knowledge where the absence of such construction as I have particularised has led to the rapid spread of fire and the wholesale destruction of property. All this is not information to architects. They know of it quite well, but, inasmuch as it would mean an enhanced outlay, and the law does not insist upon it, the clients for whom they build can be induced only in rare cases to adopt such methods, and consequently the old abuses are perpetrated afresh."

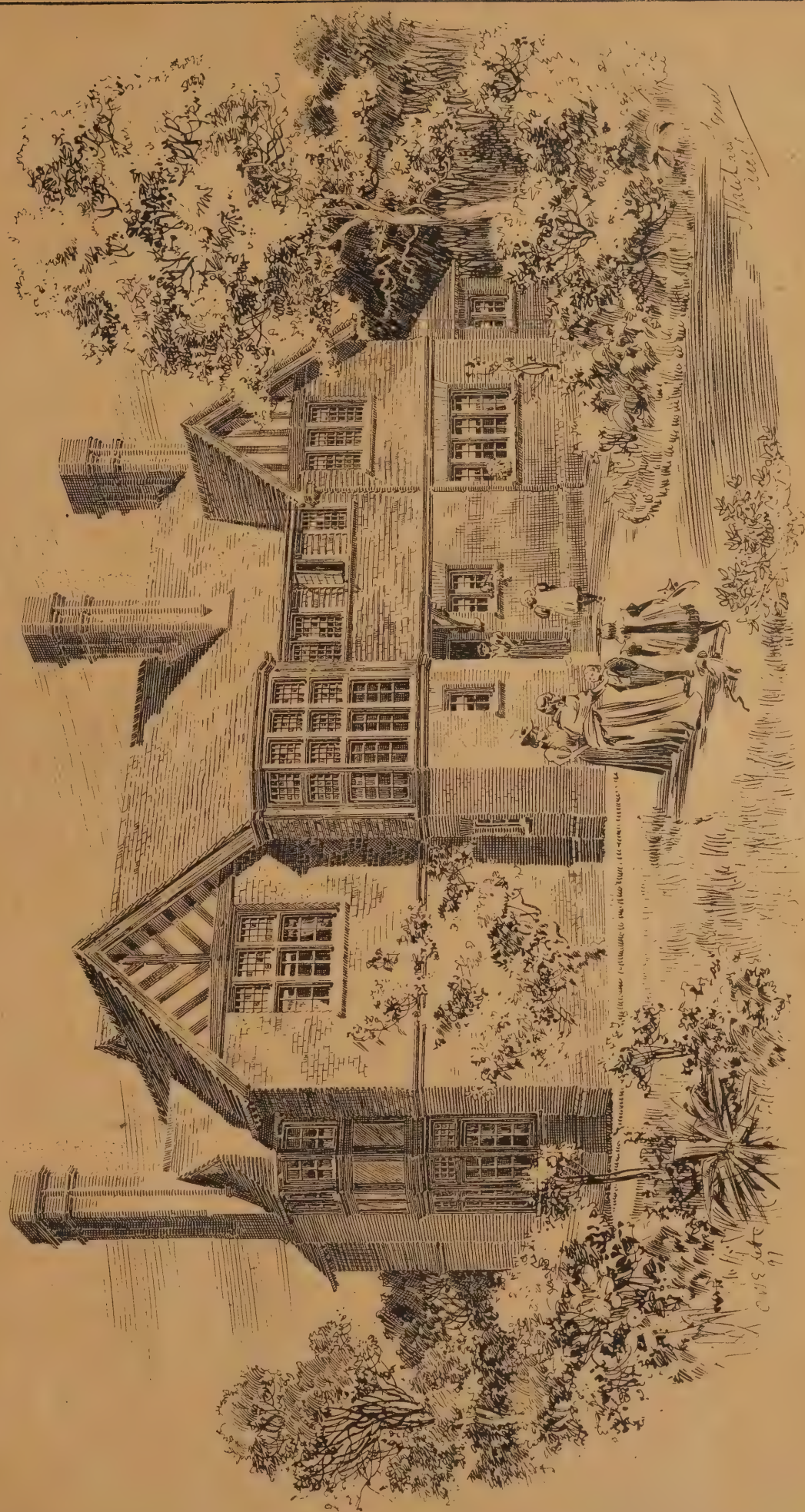
A PORTRAIT of Madame Vigée Le Brun, painted by herself at the age of 27, has been purchased for the National Gallery. It is placed in Room XVII. The Rev. Alfred Gurney has bequeathed to the Gallery the portrait by Mr. G. F. Watts, R.A., of the late Mr. Russell Gurney, Recorder of London. A body of subscribers have presented to the National Gallery through their hon. treasurer, Sir James Blyth, a picture by Mr. Frederick Goodall, R.A., entitled, "The Ploughman and Shepherdess," exhibited last summer in the Royal Academy. This picture is hung in the National Gallery of British Art, Millbank. The portrait of Mr. G. F. Watts, R.A., by himself, which was bequeathed under certain conditions to the nation in 1892 by the late Sir William Bowman, is now placed in the same Gallery. The condition attached to the bequest, that this portrait should be hung with any collection of Mr. Watts's works that should come into the possession of the nation, being now fulfilled by Mr. Watts's important gift of eighteen of his pictures on the occasion of the opening of Mr. Tate's Gallery last summer, the picture, which until recently has been on exhibition at Stockholm, has now been handed over by Mr. J. Fred. Bowman to the trustees of the National Gallery.

"SUMMERDALE," Epsom, illustrated in our central pages, occupies a beautifully timbered site in the Burgh Heath Road, and was erected for Mrs. M. Wood. It is faced with Bracknell red bricks, the upper portion being weather-tiled; the roof is tiled. All the internal joinery is Oregon pine, stained and beeswaxed. The house was designed by Mr. J. Hatchard Smith, 41, Moorgate Station Buildings, London, E.C., Mr. J. A. Jeal, of Epsom, being the builder. "Newdigate Place," which we also illustrate, occupies a commanding site, with beautiful views over Leith Hill and the surrounding country. The external walls are faced with local red bricks, the upper portion being weather-tiled; the roofs are tiled. All the half-timbered work is of oak filled in with plaster; the casements and frames, and doors throughout are also of oak. The hall has an oak, open timber roof, the walls are panelled to a height of 10ft.—a gallery running round two sides—the staircase and balustrading is also of oak, and the dining-room has oak panelling; all other joinery is of Oregon pine, stained and beeswaxed. Messrs. J. and J. Ward, of Warlingham, were the builders. Messrs. Moody Bros. supplied the electric light plant. The decorations by Mr. Garrick, of Reigate. The work has been carried out under the supervision of the architect, Mr. J. Hatchard Smith, of 41, Moorgate Station Buildings, London, S.E.

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"NEWDIGATE PLACE," DORKING. J. HATCHARD SMITH, F.R.I.B.A., ARCHITECT.



"SUMMERDALE," EPSOM. J. HATCHARD SMITH, F.R.I.B.A., ARCHITECT.

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THE POSSIBILITY OF EXAMINATIONS IN ART.

By A. R. JEMMETT.

YOU will doubtless remember that at the time when the Institute examinations were made compulsory, a certain number of architects raised a protest against them, on principle, some leaving its ranks on that account. Their general attitude, so far as I was able to understand it, was this. You cannot examine in Art. Architecture is an Art, therefore you cannot examine in Architecture, and if you could, this particular examination, as carried out, is of little use to that end. To this I once saw a reply, in the journal which is generally supposed to represent the opinion of the Institute, to the effect that no one ever said you could, that the Institute examines in some of those things which, in its opinion, an architect should know; in those sciences upon which Architecture rests, so that it was time all this talk about examinations in Art was stopped, as being beside the mark. Well, it was stopped; everybody seemed to be agreed and to rest comfortably satisfied that we cannot examine in Art, and moreover don't try to do so. When everyone takes a thing for granted, then is the time to question it. So it might be worth while to consider whether it really is a fact that you cannot examine in Art, or whether it is only a convenient fiction, invented to save trouble, and for reasons which it is not worth while discussing. Now, before we proceed, it is necessary to try and come to some understanding as to

WHAT WE MEAN BY ART,

though I do not propose to attempt to define it exhaustively, in the short space at my disposal. The whole truth cannot be expressed in an epigram, nor Art defined in a sentence; there are, however, some aspects of it which we should do well to consider, as bearing upon the subject before us. Art, as we are told, deals with human emotions; it interprets them and appeals to them. According to Viollet le Duc, "Art is an instinct, a craving of the mind, which, in order to express itself, employs various forms." "Art is the form given to a thought, the artist is he who, in creating that form, succeeds in conveying by it the same thought to the minds of his contemporaries. Elsewhere," he says, "that in order to live, Art must be free in its outward expression, though strictly regulated as regards principles; it dies when its principle is disregarded and its expression enthralled." Now, if Art does appeal to and express human emotions, the artist must remember that the elemental feelings of humanity are always the same, and can always be appealed to in the same way. As Viollet le Duc points out, "the sight of sorrow, the accent of sorrow, the representation of sorrow, will all produce the same feeling, that of pity." He might have added to this, and it always will while human nature remains what it is. Observing this and similar facts, there has gradually been built up on them a language of the Arts, which appeals to these elemental emotions, as well as to the more complex feelings of our more complex existence, by means which experience has shown to be successful. Thus, if the painter wishes to appeal to the sentiment of pity, he paints a representation of sorrow, not of joy; unless he wants to appeal to the cynic, who might pity humanity for being so absurd as to be happy. But then the cynic is not human. So again in Architecture, the effect on the mind of a low, dark, mysterious and gloomy vault is, as the same writer points out, different to that of a lofty hall with

A FLOOD OF LIGHT AND AIR.

The artist, therefore, who wishes to appeal to the emotions naturally aroused by the one method must not employ the other. "To appeal successfully to human sympathy," says Leopold Giddily, "the artist must thoroughly understand the idea which is the cause of emotion and the relation of the audience to

this idea, and he must be a master in all technical expedients needed to create an intelligible picture which shall illustrate the idea." In other words, Art is a language whereby we express our ideas and sentiments, which appeal to human sympathy; if we would wish to be understood—that is, really appeal to others—we must ourselves understand and speak this language correctly; if we do not we must be content to be misunderstood. Vitruvius tells us that this language of the Arts is the result of theory and practice; that theory is common to, and may be known to all, but practice occurs to the artist in his own Art only. Though we may possibly not have here a complete definition of Art, yet I hope it will be allowed that there is nothing contrary to its nature. The cause of most disagreements on matters of Art, is a misunderstanding as to the meaning to be attached to the word. If Art is understood to be simply and solely a matter of fancy or caprice, with no reason and no meaning; if it has neither theory or principles, it is evident that you cannot examine in it, for you cannot find out whether a man knows, when there is nothing to know. But if there is something to be known, which the artist must know before he can create a work of Art, if these authorities just quoted knew what they were talking about,

IF ART HAS PRINCIPLES

and a theory, it is not so difficult to find out whether a man understands them, provided always, that you first understand them yourself. It might help us, to analyse a little the different elements which go to make up a work of creative Art. There is first the emotion to be expressed, then the idea which is to express it, and lastly, the method by which this idea is worked out. As an instance. There is implanted in the human heart, a certain instinctive faith in the unseen, a craving for immortality, "a passionate yearning for the face of God." This instinct may be carefully hidden from sight, may be enervated with a superficial scepticism, but in every normal man there it is, and we will say it is the feeling we would wish to express. The first thing then, is that we sympathise with it, and be able to feel and understand it ourselves; if we are architects, we have then to consider how it can be best expressed in Architecture. The expression of this instinct has taken various forms, according to the various conceptions which mankind has held of the nature of the Deity. We may thoroughly enter into this sentiment, and think we have ideas which would fitly express it in stone, but if our conception takes a form which would have appealed to an ancient Greek, or a Moslem, or to a Frenchman of the thirteenth century, it is evident it will not appeal to our contemporaries, as their conceptions of the nature of the Deity, and of immortality, differ from those of the Greeks, the Moslems, or even the thirteenth-century Frenchmen. So the artist must not only be able to feel the emotion, but he must also be acquainted with the contemporary ideas and conceptions of the subject, so that his idea may take a form which appeals, which will be understood. This religious instinct has, in all ages, found some expression in certain ceremonies, for the due performance of which buildings are required. People collect together in obedience to an idea, the worship of the Deity. Influenced by the sentiment of this worship, they perform certain ceremonies, which ceremonies express the idea, and require that the people should be grouped in certain ways, that there should be room for carrying out such movements as may be demanded. This gives the building its *raison d'être*, and suggests its characteristic form, so that the artist finds a clue, something to start upon. The logical development of this primitive form, by an artist saturated with the sentiment of the subject, is the method by which the idea is expressed in Architecture. If the building is nothing but a shell, large enough for the performance of a ceremony, but not taking its particular form from this ceremony, or group of ceremonies, or if there has been introduced a misplaced idea, which tends to interfere with, or which does not express, the functions of the building, it

can hardly be said to express the main idea, the underlying sentiment or instinct which was the reason for its existence. It is, of course, possible to express and appeal to the particular instinct of worship in other ways than by forms which express the functions of a building, which functions grow out of the ceremony suggestive by this instinct; but this is the architect's way of doing it. Any ideas which do not readily lend themselves to this treatment, and are not suggested by the necessities of the case, are better expressed in some other medium, such as poetry or music. Imagine a man equally gifted in all forms of artistic expression. Though we might possibly be able to imagine this, we could never imagine him spending twelve months of his time and thousands of pounds of other people's money, and worrying through all the practical business details necessary to get a building put up, just for the sake of an idea which he could have expressed so much easier and quicker in four lines of poetry or a few bars of music. It would not be reasonable, neither would it be artistic. But there are some ideas, some feelings, that are

BEST EXPRESSED IN ARCHITECTURE,

that cannot be fully expressed in any other way—those thoughts that lie too deep for words. So that the artist should know the possibilities and limitations of expression of which his Art is capable; what ideas, what emotions are most appropriate to his particular method of expression; lest he should one day be discovered uniting the Iliad in terra-cotta, or infusing the sentiment of the moonlight sonata into a jam factory. Now the question is, How far is it possible to examine—that is, find out how much a man knows of all these things? First, does he know what he has to do, and secondly, can he do it? It seems to me that as far as the nature and functions of Art are concerned, that the matter presents no difficulty. An artist expresses human emotions? Does he know what they are? Does he feel them himself? If not, how can he express them? Does he know how to appeal to them? If not, how can he do it? If he is an architect, does he understand the method whereby the idea and the sentiment of any building is to be expressed? Does he know the underlying idea which causes people to assemble in a church, a court of justice, or theatre? Is he acquainted with the way in which the procedure in these buildings governs their outward form and appearance, of how to get at the characteristic sentiment? If not, he is liable to produce such buildings as we see all over London—features appropriate to a theatre put on a bank or a town hall; cherubs heads on

A DESIGN FOR A WAR OFFICE;

or, perhaps, the same character of detail, with the same feeling, spread impartially over every building, quite regardless of its natural sentiment. In all this I should think it was possible to teach and as possible to examine. For these things are not a matter of individual fancy. During the last few centuries, since Architecture got out of touch with life, most buildings in this country have ceased to express any definite idea or sentiment whatever. The general practice seems to have been to put up a structure which could, without much inconvenience, be used for the particular purpose required, without any attempt to let its general setting out, grouping, and construction express the idea. Artistic expression, where such was desired, was supposed to be obtained by the introduction of sculpture. A group, say, of Charity relieving human suffering, over the entrance to a hospital, or a blindfolded female with a sword and a pair of scales over a police court, were understood to express the idea of the building. But where the general character of the hospital suggests

A ROW OF TOWN MANSIONS

it would be much simpler and clearer to write up instead "This is a hospital," because then there could be no mistake. The mind would no longer be bewildered between the two different sentiments, one expressing town mansion, the other hospital. These four words, as

A paper recently read before the Discussion Section of the Architectural Association.

expressing the nature of the building without any doubt, might be considered more artistic than the sculpture, even though carved by Michael Angelo himself. I, for one, think they would be so. In most of our public buildings the legend written over the door is the only bit of artistic expression about them. It looks as if the aim of most designers was to treat the outside of the building just as fancy dictates, to give it such forms as please our taste, and then to say, "I like it and my particular friends like it, they think it clever, even original; what more do you want, what more is required for fine art? If you don't like it, why, all the worse for you, evidently you are not an artist." To this the only possible reply is, that if he knew more about it he would no longer like it. Now, if we talk to such a man about examination in Art his sensitive soul is shocked. Ask him why he does such or such a thing, he says he doesn't know, and he doesn't want to know, that he works at the bidding of his own proper instincts or something equally enlightening; ask him what they are, and his pity for you is too deep for utterance. In fact, he is quite delightful, and evidently a wonderful genius. The only thing to regret about him is his ignorance of himself, his fellow creatures, Art, Nature, everything. Now, it may be difficult, or even impossible, to examine a man in this sort of thing. If possible, it certainly is not worth while; but we must not forget that whatever we pleased to call him, at no other period in the world's history, and even now, perhaps, in no other country but this, would he

BE CALLED AN ARCHITECT.

The only parallel to such work that I am aware of, is that of the ruins of Central America, which, funnily enough, such men do not admire; rather do they admire a thirteenth century cathedral, a building evolved from principle, not caprice, whose architect would certainly never acknowledge us as brothers in Art while we work on such lines as this. Any disbelief in the possibility of examination, on the part of those whose chief interest in Architecture is emotional; may be traced, perhaps, to an objection to being tied down to any definite rules, which examinations would admit, as you must have some definite standard by which to examine. This attitude of mind seems to rest on a confusion between principles and formulae or cast-iron rules; the confusion is so general that it is not to be wondered at. According to the dictum of Viollet le Duc, already quoted, Art must be free in its outward expression, though strictly regulated as to principle. If, then, an examination was confined to matters of principle it could not interfere with the individuals freedom of expression. As an instance of what I mean. In a Greek temple, the vertical lines on the columns and triglyphs accentuate, or make still clearer, the idea of support already expressed by these features before they were decorated. The general principle is, that all such ornament, and anything not absolutely required by the structure, should have a similar end in view, viz., to draw out, or to heighten,

THE EXPRESSION ALREADY INHERENT IN THE STRUCTURE;

not to add a different or new expression. This is a principle which all Architecture follows; but if we said that, whenever it is required to accentuate a point of support, we must always do it, like the Greeks, with vertical lines, that would be a formula which we are not bound to follow—we can do it how we like, so long as we do it; but in attempting any novel treatment of our own, we must see that we keep the right end in view. If an examiner were to insist that all supports should be decorated with vertical lines, I can understand that an artist, who valued his freedom, would object; but if the examiner simply insisted on the principle, and allowed the artist perfect freedom in its application, I cannot see any rational objection; at any rate, I cannot see where the impossibility comes in, provided, as I said before, the examiner knows the principles himself. We are rather apt to

forget nowadays that, though Architecture appeals to the emotions, the process whereby we obtain this result is not an emotional process. It is evident that no amount of emotion could build either the Pantheon or Westminster Abbey. Take music, as an example—the complimentary Art to Architecture. An Art, the most emotional of all, perhaps, a theory the most mathematical and precise. In this Art they examine, and examine successfully, because the examiners all know the theory, and are agreed upon its principles. Why cannot we do the same, if we think it desirable? Take acting again; you appeal to the emotions, but you do it by certain means which are not chiefly emotional. Certain gestures, certain tones of the voice, appeal to certain feelings—you have to learn this before you can act properly. If you behaved naturally on the stage, the effect would not appear natural to the audience. Every time an actor gets an engagement with a manager to whom he is unknown, he has to go through what is practically an examination by this manager, who can find out what he knows about his Art, and also what his natural capacity is for making use of what he knows. In any Art

THE ELECTION TO A SOCIETY,

or the conferring of a medal, is practically the result of an examination by those who elect. In Architecture we have now an examination at the Institute, which, as I said at the beginning, I understand is directed to find out whether you know certain things which, in the opinion of the examiners, you ought to know; but which does not profess to gauge your knowledge of Art, or your attainments as an artist. I may be wrong in this, and I must confess it is difficult to exactly appreciate this position; but what does seem clear to me, from the papers I have had an opportunity of studying, is this—that it would be difficult to frame an examination which more skilfully avoided those things which you must know if you would be an architect, viz., the principles of your Art. Would it not be possible to make this an examination in Art by asking for reasons and principles rather than for facts? They ask how certain things are done; suppose they ask how they should be done, and why? That is the important thing to know. In the history of Art, which I think an artist must know, they sometimes ask for a list of the works of some celebrated architect. Would it not be better to ask for his point of view, so to speak; his method of reasoning; his position as compared with others, if it is thought advisable to ask anything at all about him? With regard to any great man, what he did is not as important as why he did it. Again, they ask for features taken from various styles, but they don't seem to ask their meaning. Instead of drawings of classic cornices and other details, and Gothic door jambs and window heads, suppose you were asked to take two such typical buildings as

A GREEK TEMPLE AND A GOTHIC CATHEDRAL,

each of the best periods, to analyse them, and point out how the same principles were worked out in each, the reasons for the form of the plans, and why they are different; the various aims and methods of reasoning of the Greeks and medievalists, and the means they adopted to express the sentiment of the subject. Instead of having to draw an exact plan of St. Sophia or the Parthenon, suppose you were asked for sketch plans and sections of a typical Greek temple, a Byzantine church, a Roman basilica, an Italian villa, a Venetian Gothic palace, a thirteenth century cathedral, a town hall of the same date, etc.—not actual examples, but the type. While this examination includes a design, to be done to the satisfaction of the examiners—whatever may be intended by it—it can still be discussed as an examination in Art. If these designs are judged by the standard of taste of the examiners, their value is an unknown quantity; but if they are judged by the immutable principles of Art, why is not the rest of the examination run on the same lines? I cannot help thinking that if the principles of the thing are understood, it is possible to examine and place a design, in so far as it carries them out. The worst of

it is, that if we once begin to reason about anything in this world, we never know where we shall get landed, or to what startling and unpleasant conclusions we may not be forced. With regard to this examination, it is difficult to avoid one of two conclusions; either the Institute thinks a feature of more importance than the reason or principle which dictated it, or else they don't ask for these reasons and principles, because they don't know them. Which of these two conclusions is the most absurd? But though I believe in the possibility of examination, I would like to draw a distinction between the possibility and the advisability, also between the possibility at one time, as distinct from that at another time. It seems to me that at those periods

WHEN ART HAS BEEN MOST ALIVE, there has been a large consensus of public opinion controlling it, as in the days of Pericles. In such days, the artists were not only agreed as to principles, but also as to the forms in which these principles should find expression. An examination would then have been the simplest thing; but at the same time, and for this very reason, quite unnecessary, for besides the artists, who would naturally bring every youth up in the way he should go, there was so high a standard of public interest and knowledge, as to render an artistic importer impossible, he could never have made a living. I fancy that if anyone had attempted to erect on the Acropolis, such monstrosities of unreason as we can see around us, he would have been thrown over the walls, if he wasn't executed for high treason. So that when an examination is most possible, it is, at the same time not necessary. On the other hand, at those times when Art does not flourish, when the public will tolerate anything, and an examination seems advisable to keep out the imposter, and to prevent the lamp of Art from flickering out altogether; it is just at this time, and again for this reason, that it is most impossible; as there is not a sufficiently large body of artists—all agreed as to principles—to enforce their standard upon the rank and file. So that, I take it, when examinations are necessary, they are not possible; and when possible, they are not necessary, which I hope you will consider a satisfactory conclusion.

THE Archbishop of Capetown proposes to build a new cathedral at Capetown at a cost of £120,000.

THE catacombs of Rome are to be lit by electricity. Now we shall see the frescoes of the burial chapels as we rarely see the pictures in the National Gallery.

THE congregation of Kingston Vale Church are going to erect a reredos in memory of the late Duchess of Teck, and Mr. Bodley has been entrusted with the designing of the work.

To perpetuate the memory of the fourth Marquis of Downshire, it is proposed to lay down a new chancel floor of marble in Hillsborough Church. A large statue of the Marquis, erected by his tenantry and friends, stands facing Hillsborough Church.

THE Building Committee of the Bradford City Council have passed amended plans for the proposed new theatre in Great Horton Road. The plans show improved means of circulation and egress as compared with those originally submitted.

THE annual dinner of the architectural staff of H.M. Office of Works, 15, Whitehall Place, was held on Wednesday, January 25th, at the Commodore's Salon, Holborn Restaurant. The chairman, Mr. Henry Tanner, F.R.I.B.A., was supported by Mr. W. T. Oldrieve. The toast of the Queen having been drunk, a musical programme was gone through, all the performers being members of the staff. The songs by Messrs. Reavell, Houlst, and Neubronner, and the violin solos by Mr. Creswell were especially applauded. The toast of the chairman, proposed by Mr. Leverton, in a witty speech, was enthusiastically received, Mr. Tanner's reply meeting with a similar reception. The toast of Mr. Oldrieve and the Dinner Committee, proposed by Mr. Reavell, concluded the list.

THE TOWER BRIDGE.

THE Bridge House Estates Committee have presented to the Corporation a report in relation to the erection of the Tower Bridge—a work intrusted to them by the provisions of the Corporation of London (Tower Bridge) Acts of 1885, 1889, and 1893. When the royal assent was given to the Act, it was agreed to employ Sir Horace Jones as architect and Mr. (now Sir) J. Wolfe Barry as engineer of the bridge at a remuneration of £30,000, to be divided between them in such proportions as they might mutually arrange, such sum to include all expense of superintendents and clerks of the works, but not Mr. Barry's remuneration for Parliamentary services. Sir Horace Jones died in June, 1887, and an arrangement was made between his executors and Mr. Barry for the latter to undertake solely the duties of the undertaking. Mr. Barry was eventually paid £12,000 for additional services. A considerable quantity of property had to be taken and paid for under the powers of the Act, including Queen Elizabeth's Grammar School, Hartley's Wharf, St. Olave's Grammar School, and other buildings. In carrying out the construction of the bridge,

THE WORK WAS DIVIDED

into separate contracts, viz., for the construction of the piers and abutments (Mr. John Jackson), £147,279; the northern approach (Mr. Jackson), £59,001; the cast-iron parapets of the northern approach (Mr. Jackson), £6418; the southern approach (Mr. William Webster), £39,327; the hydraulic machinery of the bridge (Sir W. G. Armstrong, Mitchell, and Co.), £98,962; the iron and steel work of the superstructure (Messrs. W. Arrol and Co.), £349,959; the masonry and brickwork (Messrs. Perry and Co.), £149,122; the paving and lighting (Messrs. Perry and Co.), £30,333; gates, rails, and heating apparatus (Messrs. W. Sugg and Co.), £4793; signalling and interlocking apparatus (Messrs. Saxby and Farmer), £8326; construction of reservoir (Messrs. J. Mowlem and Co.), £2164; and other smaller contracts.

THE ARCHITECT'S ORIGINAL INTENTION

was that the towers of the bridge should be of masonry alone, but, owing to the weight, it was decided to construct iron pillars at the angles of the piers, braced together horizontally and diagonally, and surrounded by masonry. That alteration entailed a considerable additional expense. The Prince of Wales laid the foundation stone in the name of the Queen on July 21st, 1886, and the bridge was opened on June 30th, 1894, by the Prince on behalf of Her Majesty. As evidence of the admirable construction of the bridge, it was a source of gratification to the committee to state that since the opening only thirteen interruptions to the land traffic had occurred by reason of any fault in the machinery, and these delays averaged six minutes each. No interruption to the river traffic had occurred through any defect in the machinery. In view of the intricate nature of the machinery, the large amount of traffic that passed through and over the bridge, and bearing in mind that the structure was the largest bascule bridge in the world, the committee thought the Corporation had every cause to be satisfied with the construction and general working of the bridge.

A NEW high school for girls, which has been erected at a cost of £7000, and will accommodate 200 pupils; has been opened at Shrewsbury. The Linton Memorial Schools, which have been erected in the parish of St. Peter le Bailey, Oxford, on a portion of the site of the old New Inn Hall, cost nearly £4000.

A PAPER will be read by Mr. Geo. Ellis, "On the Structure and Properties of Timber," before the members of the Institute of British Carpenters, on Saturday next, in Carpenters' Hall, London Wall.

HERR REINHOLD BEGAS, the well-known German sculptor, has been adjudged the winner in the competition initiated by the Government for a monument to Bismarck, to be erected in Berlin. His was the only really practicable design submitted.

Professional Items.

BRISTOL.—The new boys' school at Eastville is situated in the upper part of Eastville. In the centre of the building is a large rectangular assembly hall, with eleven class-rooms and a couple of cloak-rooms surrounding it. Some of the class-rooms are for fifty children, and others for sixty; and the total number for which the school is built is 600. There are entrances from each end, with a cloak-room and lavatory by the side of the corridor leading into the assembly hall, and into this central hall the class-rooms open. The building is of pennant with Bath stone dressings, and the roofing is of Broomhall tiles. A ventilating turret rises above the assembly hall. In the interior the rooms are supplied with a dado of glazed bricks. The designs were by Mr. E. W. Barnes, of Guildhall Chambers, Broad Street; and the contractor is Mr. J. Browning, of Fishponds. The work, which was commenced in July last and recently finished, cost £6000.

GLASGOW.—St. Patrick's new church, in the Anderston district of Glasgow, is situated at the corner of North Street and William Street, and takes the place of the present church in Hill Street, Anderston, which has stood there for half a century or more. Designed in the Early Decorated style, the new building is a pleasing addition to the architectural features of the district. The nave is divided into seven bays, and is 102ft. long by 30ft. wide. Including aisles, the total width is 59ft. The clerestory is supported by three arches of a span of 27ft. These arches are supported by granite columns, so that two columns practically support the weight of the clerestory on either side. The effect of this is that it enables nearly the whole of the congregation to see the high altar. In each of the seven bays of the clerestory is a five-light window with traceried head, and in the bays of the aisle, on the epistle side, are two two-light windows with traceried heads. The great west window is divided into seven lights, with richly traceried head, and is 32ft. high. The baptistery is placed at the end of the aisle on the gospel side. The roof, supported by six principals, has a total height, from floor to ridge, of 67ft., but is ceiled internally at a height of 57ft. The internal length of the church is 134ft. Accommodation is provided for over 1000 worshippers. There is ample sacristy accommodation. The church and presbytery are built of Locharbriggs stone, the roofs covered with slates from the Aberfoyle quarries. The church has been erected at a cost of £9000. Both church and presbytery are lit by electric light. The whole has been designed and carried out under the direction of Messrs. Pugin and Pugin, of London.

HALIFAX.—Plans for the Halifax Public Hall, which is about to be erected by a limited company, have been prepared by Mr. W. C. Williams, architect. The site is the top corner of Commercial Street, at its junction with Wards End and Fountain Street. Being at the junction, as it were, to five roads, namely, Commercial Street, Fountain Street, the New Skircoat Road, Horton Street, and Trinity Road—which lead to all quarters of the district—the site could not well be surpassed, and the building will be an addition to the architectural adornments of the town. The plans show a large hall 71ft. wide, 118ft. long, and 60ft. high. An orchestra, with a depth of 38ft., is provided. There are two galleries, the first tier being for the grand circle and the second for balcony purposes. The end of the hall opposite to the orchestra will be circular in form, so as to add to the acoustic properties, and the ceiling will be cambered. Beneath the orchestra, and also on the grand circle level, there will be retiring-rooms. The accommodation provided for in the plans is 2549, namely, auditorium 870, grand circle 560, orchestra 365, balcony 754. Cloak-rooms, refreshment-rooms, and lounges are provided. The hall proper will be on the

Powell Street side of the ground, and shops will be erected on the Commercial Street frontage and also round the Fountain Street corner, the grand entrance being at the junction of Fountain Street and Commercial Street. The hall will be lighted by a clerestory on the balcony level. There will be a lecture theatre, with accommodation for 301 persons, on the centre corner of the site, with access from the grand entrance. The plans provide for a restaurant underneath the grand entrance-hall, with the windows overlooking Fountain Street. The style of Architecture adopted is English Renaissance.

HARROGATE.—It has been decided to erect a first-class opera house at Harrogate. The plans are by Mr. Matcham, and the work is to be commenced during the coming spring.

LIVERPOOL.—Water Street knows the White Star Line no more. In short, the firm of Messrs. Ismay, Imrie, and Co. has outgrown its old offices; and the business will henceforth be carried on in the palatial edifice at 30, James Street. The huge pile raises its lofty head high above all existing buildings in the vicinity. Somewhat of the French—or, perhaps, Free Continental—style of Decorative Architecture has been adopted. But, although possessing the free, light characteristics and adornments of the French style, the general impression is one of fortress-like British solidity, and is suggestive of all that is substantial. Indeed, the style is unique, the two tourelles, from the southernmost of which the large two-faced clock depends, being particularly striking. In hastily glancing over the exterior of the building, the spectator is impressed with the rough, uncut granite foundation, suggestive of enormous sustaining power; the splendid Norman-arched entrance in James Street; the curiously low-set entresol forming the first floor, which seems somehow or other to balance the loftiness of the building; and far above the various balconies, the innumerable windows, and the lofty watch-tower, are points which at once attract the attention of all passers by. The architect who designed the whole structure was Mr. R. Norman Shaw, assisted in Liverpool by Mr. J. Francis Doyle, who has been responsible for the carrying out of the work. Ascending the broad flight of granite steps at the main entrance, the first thing that claims attention is the handsome pair of cast-iron gates, which are both of a massive and artistic character. At the top of the steps there is a second pair of swing doors, which are upholstered in pigskin, with plate-glass windows, and on each side of which are tastefully designed bronze columns. Entering the vestibule, there is the solid and artistically designed Portland pavement, set off with green marble. On the right hand is situated the electric passenger lift, by which access can be gained to any part of the building. Immediately on the left, and surmounted by a Norman Aberdeen granite arch, is another pair of swinging doors, also upholstered in pigskin dyed red, and with cut-glass windows, leading to a splendid apartment, suggestive rather of the hall of an exhibition than a shipping office. This is on the ground floor, and it contains 480 square yards, being 60ft. in length and about 55ft. wide. From the doorway to the massive walnut and glass partition, which separates this general office from the partners' rooms at the east end of the hall, is a clear avenue 13ft. in width, paved with an india-rubber flooring of artistic design. In the centre of this avenue there stands a model of the Majestic, fully armed as a war cruiser. On each side there are massive mahogany counters resting on a foundation of polished Hoptonwood stone, elegantly curved, and surmounted by thick grained-glass screens. The ceiling forms an interesting novelty in the general contour of the building, being formed in a number of small arches composed of terracotta Ruabon tiles of buff colour. The main supports—square iron pillars—may be described as of an iron colour; indeed, by some clever combination of colours in the roof, floor, and walls, the suggestive impression from an

artistic point of view is that of iron. Hence, perhaps, the general idea of substantiality which pervades the building. The walls are throughout wainscoted in walnutwood paneling, and the fittings are also constructed of this wood, with mahogany desks on top. For the general office light is obtained by three large windows on either side, all of which are doubled, to deaden the sound of outside traffic. Around the walls are hung six of the well-known White Star pictures, by W. L. Wyllie, A.R.A. The system adopted for the heating of the entire building is the "Ideal." A handsome spiral staircase leads from the main entrance right up to the top of the building. Altogether, the new White Star offices may be classed without exaggeration as an example of unique Architecture externally, and as a model of comfort, luxuriousness, and utility within.

MELINCRYTHAN.—The Llantwit Lower School Board has recently accepted the tender of Mr. A. George Neath, amounting to £5120, for the erection of the new schools at Herbert Road, Melincrythan. The schools will have accommodation for 620 children, with the ground floor arranged for infants, having one large schoolroom, two class-rooms and marching space, and the first floor arranged for the mixed department with central hall and six class-rooms, together with masters' and mistress' rooms, and cloak-rooms conveniently situated. The building is to be of Morriston brick with Bath stone dressings, and will be a great architectural feature in the district of Melincrythan. The architect is Mr. J. Cook Rees, Neath. The duties of Clerk of Works have been entrusted to Mr. D. Wagstaff.

NEATH.—A fine block of business premises has recently been completed at New Street Square for Mr. B. W. Davies. The main elevations are faced with Ruabon red-pressed bricks, with Bath stone dressings. The ground floor has been arranged for spacious shops, which have been elaborately fitted up. The first and second floors are intended for offices, with all conveniences for each suite. The buildings were designed by Mr. J. Cook Rees, Neath. The work was intrusted to Mr. Abraham George. The clerk of works was Mr. Samuel Banbury.

OLDHAM.—The Corporation scheme to effect a large number of municipal improvements at a cost of over £200,000 has been defeated. Borrowing powers would have been asked for £339,000, and the scheme would have included the municipalisation of the tramways, extensions of the markets and Westhulme Hospital, the adoption of the water carriage system, the erection of a wide road bridge over the railway valley, and several street improvements.

SALFORD.—The Guardians have adopted a report of the Building Committee, who recommended the Board to authorise them to make an offer of £14,000 for a plot of land at Hope, containing about twenty acres, adjoining land already in possession of the Guardians, as the site for the proposed new workhouse for the Union.

SHEFFIELD.—The Central Free Library in Tudor Street and Surrey Street has been opened after undergoing extensive alterations and improvements. The principal alteration has been the utilising of the old Council Chamber, which has been turned into a public reading-room. This room, which in the old days was always dingy, has been thoroughly cleaned, and the walls painted a nice green shade of colour. In future it will be lighted by electric lamps. That portion of the old Council Chamber formerly set apart for the accommodation of the public interested in the debates has been fitted up with desks to hold bound volumes of the illustrated magazines. The old reference library has been transformed into a reading-room for ladies. The electric light is also laid on here. Close at hand is the office of the chief librarian, also used as a meeting place of the Free Libraries Com-

mittee. The alterations made in its interior arrangements have secured greater economy of space and a much neater appearance. From the librarians' office a spiral staircase leads down to the officials' counter in the reference library. This was formerly the old reading-room, but it has been very nicely fitted up for the purposes to which it will henceforth be devoted. Busts of James Montgomery, Ebenezer, Elliott, and Homer have been unearthed from dim recesses, and now occupy places of honour in this resort of the studious. The lending department will still be in its old situation, but, in common with the rest of the building, the room has been brightened up, and made more presentable and better adapted for the use of both officials and the borrowers of books. The structural alterations have been carried out by Mr. Newbold, of the city surveyor's department, and under the direction of Mr. C. F. Wike, the city surveyor.

SKEGNESS.—It is proposed to erect a new chapel at Skegness, and tenders have just been opened for the carrying out of the work. That of Mr. Todkill, builder, of Sutton Bridge, has been accepted. The amount of this tender was £1800, and the next was £2000, the amount of the highest tender sent in being £2450.

STOKE.—The new operation rooms at the North Staffordshire Infirmary have recently been opened. The foundation-stone of the Infirmary was laid by the Prince of Wales in 1866, and at the time of its erection its design and construction were fully up to date, but during succeeding years great progress has been made in sanitary arrangements and appliances, which have from time to time been followed by the committee. The last of such improvements has been accomplished by the re-modelling of the operation room and in providing anæsthetic and sterilising rooms. The points gained in this work have been the provision of a better approach to the operation room, facility in the treatment of patients undergoing operations, and the convenience and comfort of the operating surgeons. Also the facility for effecting perfect cleanliness in every part of the operating room and its adjuncts and the provision of suitable and ample lighting throughout these rooms. All the old fittings are replaced by suites, wash basins, and shelves made specially by Messrs. Twyford's Limited, the flooring being of terrazzo and the walls of specially-made tiles by Messrs. Wedgwood and Sons. The alterations have been carried out by Mr. T. Goodwin, builder, from the designs of Messrs. Lynam, Beckett, and Lynam, at an estimated cost of £1000.

TRURO.—In place of the old British Schools at Truro, which were condemned about three years ago, new buildings have been erected on a site between Bosvigo Lane and Chapel Hill, by Clemens and Battershill from the designs of Mr. S. Treval, the contract price being £1682. Accommodation is afforded for 450 children, who will have the advantage of spacious playgrounds surrounding the school.

WALSALL.—Public improvements have occupied a good deal of attention in Walsall of late. George Street, one of the old narrow thoroughfares, has long been marked for widening and improvement, but difficulties, which up to a very short time since seemed insuperable, stood in the way. Skilful negotiations have, however, resulted in the adoption of a scheme whereby the thoroughfare at the most constricted part is to be widened by several feet, at a cost to the town of £850. Then a sub-committee has been appointed to consider and report upon the character of the buildings to be put upon the land in Lichfield Street, bought as the site of a town hall and municipal buildings; and another to seek out a site for an infectious diseases hospital. Further, there is now a prospect of the 1700 square yards of land at the end of Park Street, which remain from the Artizans' Dwellings Act scheme some twenty years ago, being utilised.

Under Discussion.

THE WINTER SESSION.

ETRUSCAN AND ROMAN WORK.

A paper on Etruscan and Roman work was delivered before the Architectural Craftsmens' Society of the Glasgow and West of Scotland Technical College, a few evenings ago, by Mr. D. Bennett Dobson. He showed the origin of the Etruscans, tracing them back from being the descendants of the Pelasgians to the ultimate development of the Roman nation. He dealt very fully with their work, as exhibited in their tombs of different kinds, showing also how they originated and improved on everything, even in science and arts. They invented the arch long before the Romans existed. Mr. Dobson then led up to the founding of the Roman Empire, and showed fully all the various buildings of the Romans—her temples, theatres, baths, and monuments, illustrating his paper by lantern views.

THE ROMAN CAMP AT ARDOCH.

The monthly meeting of the Society of Antiquaries of Scotland was held at Edinburgh, Mr. J. Balfour Paul in the chair. The meeting was entirely devoted to the reports on the excavation of the Roman station at Ardoch, in Perthshire, undertaken by the Society in 1896-97. The secretary, Dr. D. Christison, reviewed the various notices of the Roman camp at Ardoch, from the earliest in 1672 to the latest in the statistical accounts, all being more or less vague and unsatisfactory. He then proceeded to describe the fortifications, which, owing to complexity unknown in other Roman works at home or abroad, have given rise to much speculation, but as no trace of occupation subsequent to that of the Romans had been revealed by the excavations, the fortifications, complex as they are, must be regarded as the outcome of Roman military engineering.

MELLIFONT ABBEY.

At a meeting of the Architectural Association of Ireland, Mr. J. Howard Pentland in the chair, Mr. Anthony Scott delivered a lecture on Mellifont Abbey. The lecturer dealt most exhaustively with the subject of this fine old Cistercian foundation. Like all remains of the kind in Ireland, it is entirely ruinous. The lecturer illustrated his remarks by numerous measured drawings and sketches, prepared by Mr. Scott, jun. He entered on a comparison and analysis of the plans of Mellifont and the contemporary Cistercian abbeys of France. Mellifont boasts a remarkable feature in the shape of an octagonal detached building, generally supposed to have been the lavabo or baptistery. The lecture was illustrated by a number of lantern views from photographs taken by the members on the annual excursion. We hope to publish Mr. Scott's paper with the illustrations very shortly.

THE ARCHITECTURE OF MICHAEL ANGELO.

Before the Liverpool Architectural Society, a paper was read by Mr. Beresford Pite on "The Architecture of Michael Angelo." Mr. Pite said that the accepted verdict of architectural historians and critics was that Michael Angelo's influence was detrimental to Architecture. He then enlarged upon the extent and reasons of Michael Angelo's influence, the great architect's mastery of the arts of design in sculpture and painting, and the noble character of his intellect. The importance of St. Peter's at Rome was emphasised. Imitative followers without his powers or opportunities came after him. His practical faith in the unity of art was evidenced in his work in the three directions of sculpture, painting, and Architecture. There were the Madonna in San Lorenzo, in Florence, and the Pieta in St. Peter's in sculpture, and the figures of the ceiling of the Sistine Chapel in painting, which were instanced as having a basis of

constructive design, and expressing ideas of scale, grandeur, breadth, and dignity of line in composition. Those qualities also existed in Michael Angelo's architectural designs. Towards the close of his interesting paper, Mr. Pite referred to the length and variety of Michael Angelo's life, and the quiet power of persistence which the great artist possessed.

THE BUILDING TRADE AT NOTTINGHAM.

The seventh annual meeting of the Nottingham Master Builders' Association was held at the Chambers, Bentinck Buildings, Wheeler Gate, when Mr. James Wright, the vice-president, presided.—Mr. Frank Hodson, hon. secretary, and Mr. J. W. Woodsend, the treasurer, respectively presented their reports of the past year's work and finances, both of which showed that the Association was in a progressive and solvent state. The hon. secretary, while congratulating the members on the continued activity in the building trade, regretted the restless state of the labour market, and stated that notices had been received of further demands from the masons and labourers for an increased wage and shorter hours.—Hearty votes of thanks were passed to the officers for the past year. The following were unanimously elected as officers for the ensuing year:—Mr. James Wright, president; Mr. William Edgar, vice-president; Mr. J. W. Woodsend, treasurer; Mr. Frank Hodson, hon. secretary.

-MATTERS' ARCHÆOLOGICAL.

The fourth meeting of the session of the British Archaeological Association was held at Sackville Street, Piccadilly, Mr. C. H. Compton, V.P., in the chair. An interesting collection of articles connected with Roman cinerary interments were exhibited by Mr. Earle Way, consisting of a fine cinerary urn, terra cotta lamps, vases, a tear bottle, and other relics. A fine example of a Celtic bronze coin was found with the above remains, which bears on its obverse a representation in relief of the head of a chief, and on its reverse the head of a boar, with circular and half-circular symbols, in resemblance to what is known as ring money. The coin was found with other coins of Nero Claudius. All these remains were discovered in the course of excavations in the Borough High Street, Southwark, in a line running direct west from St. George's Church to Gravel Lane, Blackfriars, and would appear to indicate the site of a Roman cemetery to which the dead were brought for cremation from the city within the walls on the north side of the Thames.—Mrs. Collier exhibited a very curious pipe bowl, with carving of Burmese character, but suggestive of European influence, probably derived through the Portuguese. She also submitted a small wooden box, of oval form, and apparently of Irish origin, with heraldic carving on the lid, and a shield bearing a harp, and surmounted by a crown, and supported on either side by quaint animals, resembling a lion and unicorn.—Mr. Gould exhibited a series of old woodcuts from Titus-Sivius' history of Rome, which were printed in Strasbourg about 1507.—A paper upon some ancient houses near Halifax was read by Mr. W. D. Hoyle. The houses described and illustrated were Shibden Hall, Shibden Grange, and High Sunderland, all situated within a mile of the ancient town of Halifax. Shibden Hall is a very picturesque, half-timbered house, some portions of which are of fourteenth century work.

M. CORDONNIER, the sculptor, has finished the Pasteur monument for the town of Lille. One of the allegorical figures on it represents inoculation for rabies, and was exhibited at the last Salon.

The tender of Messrs. Woodman, Hill, and Co., of Gosport, has been accepted by the Admiralty for carrying out extensive work in connection with the defence of Portland Harbour against torpedo attack in time of war. To inclose and securely safeguard the harbour will cost about £650,000, and the work will not be completed until about March, 1901.

Correspondence.

THE BUILDING TRADES EXHIBITION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I am constantly receiving enquiries as to the Building Trades Exhibition, which your readers presumably think is to be held in March of this year. Will you kindly allow me to state that this exhibition will not be revived until March, 1899.—Yours faithfully,

H. GREVILLE MONTGOMERY.
The International Building Exhibition.

Enquiry Department.

THE DIMENSIONS OF CHIMNEYS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be greatly obliged if you would explain how the dimensions of chimneys are obtained in Banister Fletcher's book, pages 254 and 255. The examples of measuring chimney stacks are given. Also please say if this is the general method.

"STUDENT."

Professor Fletcher's method of obtaining the dimensions of chimneys is as follows: The concrete and footings are taken first, then brickwork floor by floor taken by the foot super, describing the thicknesses and deducting only the opening for fireplaces, the flues being measured in as if solid, and afterwards numbered for coring and pargetting. This is fully explained on pages 19 and 20 of "Fletcher on Quantities." Angle chimneys are measured as solid, and afterwards reduced to the ordinary standard, and the extra labour is afterwards taken as shown on pages 254 and 255. In reply to the further question this may be called the general method.

CROSSES ON GABLES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be glad if you would kindly answer in your enquiry column the following query: Would it be wrong to place crosses upon gables of a Gothic cemetery chapel (which is not intended to be consecrated)?—Yours, etc.,

"GOTHIC."

We have laid your enquiry before one of our best authorities on Ecclesiastical Art, who has sent us the following reply:—There is no reason whatever against putting crosses on gables even though not consecrated. The cross is placed merely as a symbol of the Christian faith and does not imply that there has been any ceremony of consecration. It is merely a question of design. As a general rule one cross only should be used in a small building. More look funny and detract from the general effect.

THE SOCIETY OF ARCHITECTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you please inform me through your enquiry column the requirements of the Society of Architects, so that a student may become a member; also the address of the secretary? Are there any examinations for students? and, what is the difference from the R.I.B.A.? Thanking you in anticipation. Yours truly,

"ASPIRANT."

To quote the rules of the Society of Architects, "Members shall be gentlemen who are or have been directly engaged professionally in architectural pursuits, and shall be above 21 years of age." "Associates shall be gentlemen who have obtained some distinction in literature, science, and art, connected with Architecture, and shall be above 21 years of age." "Honorary members shall be gentlemen of distinguished attainments, and shall be nominated by the Council." The entrance fee for members and associates is two guineas, the annual subscription being one guinea. With regard to examination, the rules state that: "Subject to confirmation by general meeting, the Council shall select, from time to time, certain examinations, which shall be deemed qualifying examinations for membership of the Society; and election to membership shall be

only open to candidates, approved by the Council, who have passed any one of such examinations, or an examination held by the Society, with the following exceptions: (a) Candidates who are not less than 35 years of age, and have been directly engaged professionally in architectural pursuits, as principals, for at least seven years. (b) Candidates who are not less than 35 years of age, and have been directly engaged professionally in architectural pursuits, as assistants or as assistants and principals, for at least ten years." We understand, however, that the scheme of examination is still in abeyance, although it is hoped that before long the time and conditions of the examination will be permanently settled. Further information, together with copies of the rules and regulations and forms for nomination of members, will be furnished by the secretary (Mr. Montagu Baldwin, M.A.), who should be addressed at the office of the Society of Architects, St. James's Hall, Piccadilly, W.

MUNICIPAL ENGINEERING.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you kindly inform me the names and prices of the books that should be studied for the "Incorporated Association of Municipal and County Engineers" examination.—Yours, etc.,

R. W.

We are informed that the examiners do not recommend any particular text-books, as it is desired to make the examinations rather a test of the candidate's practical knowledge of the subjects generally, than to find his acquaintance with any particular book or books. We cannot, therefore, in the spirit of the examination, recommend text-books. Your greatest prospect of success would seem to lie more in a practical acquaintance with subjects of the examination—engineering as applied to municipal work, building construction, strength of materials, sanitary science as applied to terms and buildings, and municipal and local government law as relating to the works of municipal engineers and surveyors, upon which subjects numerous general works are obtainable.

THE R.I.B.A. COMPETITIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Is it necessary to be a student of the R.I.B.A. before one can compete for the Institute's prizes, scholarships, &c.? I know it to be a condition of the Surveyor's and Civil Engineer's Institution, but am not certain about the R.I.B.A.—Yours faithfully,

"PUPIL."

We understand it is not necessary to be a student of the R.I.B.A. before competing for the prizes and scholarships. A small pamphlet, published every year, when the subjects for the prizes are announced, gives the conditions with which the competitors must comply.

BUILDERS' PRICE BOOKS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Having been a subscriber to your valuable journal from its commencement I venture to make the following inquiry: "Which of the builders' price books is the most suitable for use in the provinces? Possibly you would state the relative merits of those in general use, and oblige, yours respectfully,

C. H. H.

Correspondence with several provincial firms has failed to elicit any satisfactory answer to your query. An addition of 10 or 15 per cent. to the p.c. sums in Crosby, Lockwood, and Son's price book would probably be satisfactory for estimating purposes; but your safest course would be to obtain a list of prices from some good builder in the locality for which they are required. A reliable book of prices for the provinces is still a long-felt want in the Profession, and seems likely to remain so.

At a public meeting held at the Eastbourne Town Hall it was resolved to take steps to erect a statue of the late Duke of Devonshire as a local memorial to one who is regarded as "the founder" of Eastbourne.

Trade and Craft.

MESSRS. WEBB AND CO.

Messrs. Webb and Co., makers of plain and encaustic imperishable ceramic tile pavements, &c., have removed from Euston Road to their new warehouses at 68 and 70, Lane Street, Borough, S.E., where all communications should be addressed.

EDINBURGH INFECTIOUS DISEASES HOSPITAL.

The Corporation of the City of Edinburgh is building a new infectious diseases hospital, which, when completed, is expected to be the largest and most perfect of its kind. It is arranged on the pavilion system, and every class of infectious disease is provided for, there being about forty separate blocks, including administrative offices, nurses' home, servants' home, &c. To the sanitary arrangements of every kind the most particular attention is being paid, but more especially is this so with reference to the ventilating and warming, the purposes of the hospital making it absolutely requisite that every provision be made to prevent the spread of infection. The committee, after a careful examination of the various schemes of ventilating and warming—mechanical and natural—applicable to the special requirements, considered that none of them were entirely suitable, and finally decided to have a competition open to all engineers, a premium being offered for the best scheme. Premiated competitions are not unusual for architectural work, but this is a new departure, it being practically the first instance of such a competition for ventilating and warming. The experiment, however, has proved a decided success, a large number of plans having been submitted, under motto, from every part of the Kingdom, some of them of exceptional merit. Finally, however, those of "Reputation" were adjudged the best, and the premium awarded accordingly. We are informed that the winners are a Liverpool firm—Messrs. Dargue, Griffiths and Co., Ltd., 15, Lord Street, Liverpool—who have already been instructed to proceed.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ASHTON-UNDER-LYNE.—Accepted on a schedule of prices for the construction of a sewer in Cavendish-street, for the Corporation. Mr. J. T. Barnshaw, C.E., Town Hall, Ashton-under-Lyne.

R. C. Fish, Ashton-under-Lyne.

BECKENHAM.—For erecting a pair of semi-detached villas, St. James-avenue, Beckenham, for Mr. Bartley. Messrs. F. and W. Stocker, architects, 90, Queen-street. Quantities by Mr. J. J. Pamphill:

George Newton	£2,765	Green	£1,906
Grady	2,549	Watt	1,825
Arnand	2,330	John Appleby	1,798
Jones	2,260	Furness	1,739
Siam and Denton	2,180	Chas. King	1,720
Wills	2,000		

BRIDLINGTON QUAY.—For the erection of eleven houses, near Beckhill, for the Directors of the People's Palace. Mr. W. S. Walker, architect, Central Chambers, Bridlington Quay.

F. Blackburn and Son	£3,069	J. H. Hudson, Brid-
W. Barnes	3,025	lington
		J. H. Hudson
		£2,950
		Revised tender.
		2,900

* Accepted.

CARDIFF.—For new roads and sewer works on the Penllyn Castle Estate, Canton, Cardiff. Messrs. Veall and Sant, architects, Cardiff.

Williams and Thomas	£2,070	McKay and Davies	£2,104
Latter and Co.	2,461	E. H. Page	2,073
J. E. Evans	2,236	Thomas Rees	2,031
James Rich	2,223	Frank Ashley	1,852
Barnes, Chaplin, & Co.	2,126		

[All of Cardiff.]

CARDIFF.—For the erection of New Bible Christian Church, schoolrooms, library, caretaker's house, and boundary walls, Cowbridge-road. Messrs. Veall and Sant, architects.

George Griffiths	£5,576	0	Handford & Els-
W. H. Ingleson	5,341	15	worthy
Shepton and Son	4,953	10	Powell & Mans,
David Davies	4,750	0	field
W. Symonds and			Turner and Sons
Co.	4,693	2	9
			Newman & James
			4,332
			7
			Knox and Wells
			4,243
			0

[All of Cardiff.]

* Accepted (subject to approval of Connexional Committee.)

CHELMSFORD.—For the erection of villas and cottage, New London-road, for Dr. Thresh. Mr. G. E. Clare, architect, 66, Duke-street, Chelmsford. Quantities by Mr. J. Sydney Parmenter, Ipswich:

F. Johnson	£2,146	10	0	H. Potter	£1,919	0	0
H. Kennell	2,044	17	6	E. West, Chelms-			
Smith and Son	2,034	0	0	ford	1,827	0	0
J. Rayner	1,988	15	0	Warren	1,800	2	6
Thoday, Lim.	1,964	10	6				

* Accepted.

CHURCH STRETTON (Salop).—For additions to hotel. Mr. J. R. Withers, architect, Shrewsbury. Quantities by Mr. Henry Vale, Wolverhampton:

R. Price	£1,550	0	0	For Tower.	£860	0	0
E. H. Nicholas	1,557	12	0		965	14	0
J. Gethin	1,614	0	0		859	0	0
G. H. Bickerton	1,679	0	0		920	0	0
T. Pace	1,817	9	11		1,011	10	2

[All of Shrewsbury.]

EARLSHEATON (Yorkshire).—Accepted for additions at Old Bank. Mr. J. C. Haller, C.E., Saville-road, Savile. Town, Dewsbury. Quantities by engineer:

Masonry.—John Pickerskill, Ossett	£245	10
Joinery.—Thos. Speeding, Chickenley	229	5
Plumbing.—Wm. Hemingway, Earlsheaton	97	17
Slating.—Albert Shaw, Mirfield	119	11
Total	£692	3

ELGIN.—For the erection of "Diamond Jubilee" cottages, Maison Dieu. Messrs. Reid and Wittet, architects, Elgin:

Masonry.—J. McPherson		
Carpentry.—Sellar and Leitch		
Slating.—G. Wilson		
Plumbing.—J. Gordon and Son		
Plastering.—J. Brodie		
Painting.—A. Forsyth		
[All of Elgin.]		
Total	£2890	

GELLI (Wales).—Accepted for the erection of congregational chapel, vestry, &c., Gelli, Rhondda. Messrs. Griffiths and Jones, architects, Town Hall, Tonypandy:

J. C. Richards, Cliff-terrace, Pontypridd	£1,650
---	--------

GREAT LEIGHS (Essex).—Accepted for the erection of a pair of cottages, for Mr. S. Joslin. Mr. G. E. Clare, architect, 66, Duke-street, Chelmsford.

HULL.—For the erection of congregational church and school, Princes-avenue. Mr. W. H. Bingley, architect, Custom House-buildings, Whitefriargate, Hull. Quantities by architect:

Jno. Houlton	£5,458	0	0	Blackburn & Son	£5,022	10	0
Thos. Goates	5,274	0	0	Hebblewhite and			
Colley & Levitt	5,207	0	0	Wilson	4,981	17	6
Mark Harper	5,083	0	0	[All of Hull.]			

KYO (Durham).—For additions to school buildings, for the School Board. Mr. G. T. Wilson, architect, 121, Deopham-road, Blackhill. Quantities by architect:

Thos. Merdun, Diplo, R.S.O.	£2870	8
LLANILTHELETH.—For the erection of a church and parish room, for the Rev. Mr. Felix. Mr. C. Telford Evans, architect, Cardiff:		
T. Prosser	£2,160	
T. Williams	2,040	
		Williams and Thomas,
		* Cardiff
		£2,020
		D. Lewis
		1,488

LONDON.—For the erection of workhouse, &c., Ladywell, Lewisham, for the St. Olave's Union Guardians. Messrs. Newman and Newman, architects and surveyors, 31, Tooley-street, London Bridge, S.E.

Foster & Dick-	£183,700	0	0	Kirk and Randall	168,168	0
son	180,999	0	0	C. Wall	164,550	0
Balaam Bros.	176,000	0	0	Shillitoe and Co.		
W. Downs	175,957	0	0	Bury St. Ed.		
W. Wallis	171,592	8	7	mounds	158,785	0
Rudd and Son	171,310	0	0			
Leslie & Co., Ltd.	171,310	0	0			

LONDON.—For Christ Church Vicarage, West Green, Tottenham. Mr. Geo. H. Fellows Pryne, architect, 6, Queen Anne's Gate, Westminster. Quantities by Mr. R. Henry Hale, 33, Old Queen-street, Westminster:

J. Carmichael	£3,295	0	0	J. Stewart	£3,083	17	5
A. Porter	3,215	0	0	J. and C. Bowyer	3,035	0	0
D. Willis	3,178	0	0	Brown and Sweet-			
				land	2,829	0	0

* Conditionally accepted.

LONDON.—For alteration "Hungerford Arms," Barnsbury. Mr. John Hamilton, architect:

Beale	£1,072	Jarvis	£1,032
Shurmer	1,053	Snewin Bros. and Co.	1,026

LONDON.—For forming new roadway in women's east yard at the Hackney Union Workhouse. Mr. W. A. Finch, F. Adams

Barrett and Power	£212	0	0	J. Sheehan	£195	11	9
A. Bentham & Co.	209	0	0	Griffiths, Kings	190	0	0

LONDON.—For alterations and additions to "Jasper House," Earl's Court-road (exclusive of internal fittings). Messrs. Morley and Lettis, architects and surveyors, 185, Earl's Court-road, S.W.

Quantities by Messrs. C. John Mann and Son, 29, Great George-street, W.		
Henry Smith & Son	£2,445	0
Turner and Withers	2,359	
James Wintaker	2,199	
C. F. Kearley	2,192	
		F. Holdstock
		£2,189
		Sole and Lightfoot
		2,199
		Trafalgar-square,
		Chelsea
		2,169

LONDON.—For building factory and stables at the back of High-street and Weimar-street, Putney, for the N.A.P. Bread Company. Messrs. Ruck and Smith, Maidstone:

Factory.	£2,908	0	0	Stables.	£616	0	0
General Build-				Total.	£3,524	0	0
ings							
Parsons & Son	2,600	0	0	500	0	0	3,100
Hain and Son	2,591	0	0	453	0	0	3,044
Saunders	2,573	0	0	457	0	0	3,030
Tozer	2,509	0	0	417	0	0	2,926
Roffey	2,444	0	0	412	14	0	2,914
Laundon	2,444	0	0	455	0	0	2,899
Walsh	2,438	0	0	404	0	0	2,887
Irwin	2,438	0	0	417	0	0	2,880
Pryke	2,375	0	0	387	0	0	2,835
Dockwell	2,326	2	8	394	0	0	2,769
Lorden & Sons	2,222	0	0	422	15	8	2,748
				411	0	0	2,633

LONDON.—For alterations to the "Albany" Portland Street, W. Messrs. Gordon, Lowther and Gunton, architects:

Jarvis	£27,890	Lacelles	£27,100
Holloway	27,433	Snewin Bros. and Co.	7,092
Antill	7,400	Drew and Cadman	6,600
Sabey	7,382	Edwards and Med-	
Patman & Fothering-		way	6,517
ham	7,297		

LONDON.—For the erection of two houses and a shop, Park Avenue, for Mr. J. Carson. Mr. J. P. M. Grath, J. A. Fulton

Shannon & Rutledge	£238	0	0	Dan Gillespie	£238	0	0
John Gollagher & Co.	899	10	0	R. Golloun and Co	340	0	0
W. J. Maitsaid	350	0	0	Strand			

[All of London.]

* Accepted.

LONDONDERRY.—For the erection of four dwelling houses, Brook Street, for Mrs. Fanning. Mr. J. P. M. Grath, architect, Foyle Street, Londonderry:

J. Gollagher and Co.	£242	10	0	J. A. Fulton	£410	0	0
W. J. Maitsaid	300	0	0	S. McLaurin & Co.	315	0	0
Shannon & Rutledge	475	0	0	Bishop-street			
D. Gillespie	410	0	0				

NEWPORT.—For the rebuilding of shop premises, Nos. 143 and 144, Commercial-road, Newport, Mon., for Mr. J. Phillips. Messrs. Morgan and Hodge, architects and surveyors, Newport and Cardiff:

James Davies	£2,000	D. J. Davies	£2,547
John Moore	2,000	W. A. Linton	2,511
T. G. Diamond	2,539	F. A. Linton	2,480
John Linton	2,530	Geo. F. Davies	2,130
Thomas Westcott	2,567	William Moore	2,138
Charles Reed	2,550		

PEMBROKE.—For the erection of schools, Monkton for the School Board of Pembroke. Mr. Kenneth McAlpin, architect:

William Davies	£2,737	Charles Young, Pem-
Davies and Morgan	2,540	broke Dock
		* Accepted.
		£2,270

RADCLIFFE (Lancs).—Accepted for the erection of buildings, &c. (Contracts 1 and 2), for the Urban District Council:

Building.—John Allen, Radcliffe	£3,747
Engineering.—John Wolstenholme, Radcliffe	£1,362

SPRINGFIELD (Essex).—Accepted for the erection of a cottage, Mount Hill-avenue Estate, Springfield-road, for Mr. I. C. Smith. Mr. Geo. E. Clare, architect, 66, Duke-street, Chelmsford:

H. Potter, Chelmsford	£588	10	0
WEST HAM.—For making-up Upton-avenue, Doris-road, and other roads and streets, Forest Gate, Canning Town, and Custom House, for the Corporation. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.:			

W. Griffiths

£1,336	1	5	T. Adams, Wood
W. Griffiths	1,815	2	6
			Green (accepted)
			£1,301
			15
			10

WEST HAM.—For wood paving, West Ham-lane, for the Town Council. Mr. Lewis Angell, borough engineer, Town Hall, Stratford, E.:

W. Manders	£440	10	0	Improved Wood Pave-
Acme Wood Flooring	434	0	0	ment Co., Queen
Co.	410	15	0	Victoria-street, E.C.
W. Griffiths				(accepted)
				£287
				10

COMPETITIONS.

CITY OF WINCHESTER.
TO ARCHITECTS AND SURVEYORS.
The Town Council invite Architects and Surveyors to submit COMPETITIVE PLANS for the ERECTION OF PUBLIC BATHS.

Full particulars, with plan of site, to be obtained, on deposit of One Guinea, on application to the City Surveyor, Guildhall, Winchester, which will be returned on receipt of a bona-fide set of plans.

Premiums of £25 and £15 will be awarded for the designs adjudged by the Council of sufficient merit, and placed first and second in order respectively.

The Premiated Plans will become the property of the Corporation, and the Architect whose plans are selected may be required to carry out the work, in which case the premium will merge into the commission.

Drawing and detailed estimate to be deposited at my Office, marked "Swimming Baths," on or before FEBRUARY 28th, 1898.

WALTER BAILEY,
Town Clerk.

Guilddhall, Winchester,
January 18th, 1898.

EDINBURGH DISTRICT LUNACY BOARD.

PROPOSED ASYLUM AT WEST BANGOUR.
TO ARCHITECTS IN SCOTLAND.

The Board having acquired the Estate of West Bangour situated in the Parish of Ecclesmachan, Linlithgowshire, about two miles west of Uphall, for the purpose of establishing a DISTRICT LUNATIC ASYLUM to accommodate 600 patients, but capable of extension so as ultimately to accommodate 1000 patients, invite all architects in Scotland who are willing to compete, and who have been in practice on their own account for not less than two years, to submit COMPETITIVE DESIGNS for the same.

The conditions of competition may be obtained on application to Mr. ANDREW FERRIER, Clerk to the Edinburgh District Lunacy Board, Parish Council Chambers, Castle Terrace, Edinburgh.

"EMPRESS"
SMOKE
CURE.

The "Empress" Smoke Cure has held its ground with constantly increasing sales for many years, and is now widely recognised as the best chimney pot.

Full Particulars of Sizes, Prices, &c., on application to the Makers—

EWART & SON.
346, Euston Road,
LONDON N.W.

ESTABLISHED 60 YEARS.



Surveying and Sanitary SUPPLEMENT.

FEBRUARY 2ND, 1898.

POLICE STATIONS AND PRISONS.

By GEORGE H. BIBBY, F.R.I.B.A.

III.—CELL FITTINGS.

(Continued from page xxxviii.)

THE windows for the prisoner's cells should be, in all cases, fixed close to the ceilings, and should be about 3ft. 6in. by 1ft. 6in.

A portion should be constructed so as to open for ventilation. The official requirements render it necessary that the inlet openings for air should be not less than 54in. in area, and that the general arrangement should be similar to that shown in Fig. 4, which gives details of the construction (in plan, section, and elevation) suitable under ordinary circumstances, but it will be seen that the thickness of the walls should be an item for consideration before fixing the exact size of the window openings, for the light to be obtained through a window of the area shown would obviously be very much less where upper floors render it necessary that the cell walls of lower floors should be of considerable thickness.

The outer guard-bars should be constructed so as to throw the light from the sky in a downward direction, and should be of wrought-iron, well built into the walls, and should not be so thick as to materially lessen the daylight openings.

The sash should be of cast-iron and divided into small panes as shown on the elevation. A reference to the section will remind the planner of the window that the positions of the cast-iron sash and the wrought-iron guard bars must be so arranged that broken panes may be removed and new glass introduced when necessary. This might be impossible if the outer bars were placed too near to the sash; from the section it will be seen that the sill should be in one stone, splayed on both exterior and interior sides.

The doors of the cells, and also the frames,

should be of strong construction and lined with sheet iron. An arrangement such as is shown in Fig. 5 appears to be convenient for the purpose and is officially approved, or suggested. These doors may either open inwards to the cell or outwards towards the

passing in rations to the prisoner. The manner in which the door is usually arranged is shown in Fig. 5.

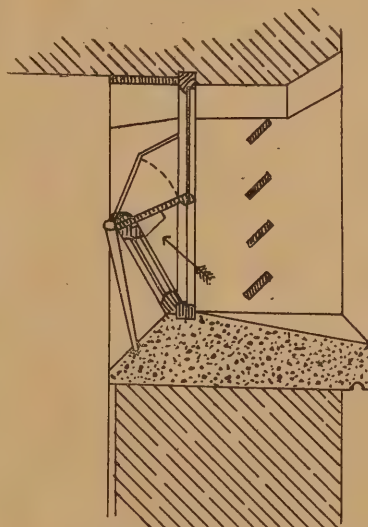
Artificial light, whether gas, electric, or oil lamps be used, must always be placed beyond the control or interference of the prisoners, and, therefore, must be accessible only from the corridors leading to the cells. In Fig. 6 is shown a plan, section, and elevation of a wall case to contain a light, which would serve the double purpose of lighting the corridor as well as the cells.

In the cell passage, or corridor, there might be a tap for cold water and lavatories, but in some cases it may be preferred that basins and water be supplied to the prisoners in their cells.

But in all arrangements for police stations the cells, &c., must be kept quite separate from the apartments used as police residences, and all accommodation for the married constables should be isolated from the quarters assigned to the unmarried officers.

The business apartments of a police station should be closely associated with the cell corridors. There may be, in small police stations, merely a small office, usable as a waiting-room and for general purposes, but in the case of large and important stations there may be necessity for offices for detectives, superintendent, clerks' office, charge room, search and store rooms, &c., parade sheds, stable buildings; all distinct and separate from the police residences.

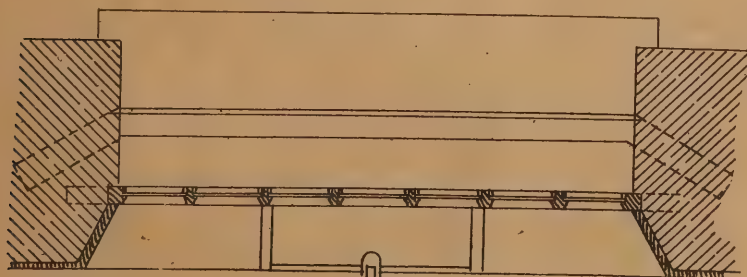
The earliest prisons of this country (other than those planned within the precincts of baronial castles) were frequently formed in the gate-houses connected with the bars or gates of cities. These were probably in connection with the guard-rooms or apartments used by the officials charged with the duty of keeping the city gates and walls. The origin of Newgate dates from an ancient custom of imprisoning malefactors in the houses adjoining this entrance to the city of London. So long ago as 1218, the gate, on the site of which the present prison partly stands, was used as a place of confinement, and was called the Chamberlain's Gate. In 1412 it was rebuilt



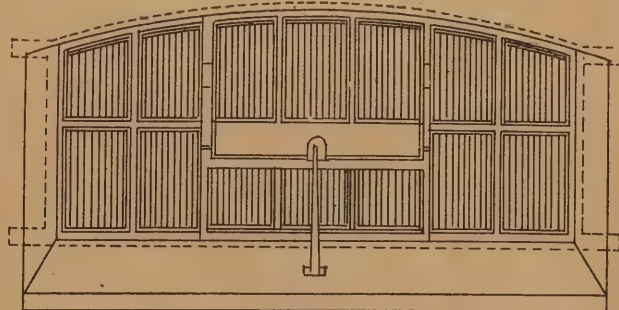
SECTION THROUGH
CELL WINDOW.

FIG. 4A.

corridor, they must each have a glazed inspection hole, fitted with a movable sliding cover, on the side next to the corridor—if the doors are to open outwards two barrel-bolts should be fixed in addition to a strong iron flush lock, which of course only opens from the outside—below the inspection hole there should be a small opening for the purpose of



PLAN OF CELL WINDOW.



INTERNAL ELEVATION OF CELL WINDOW

FIG. 4.

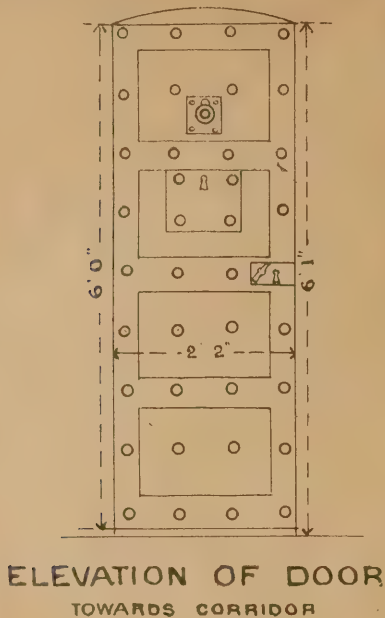


FIG. 5.

by the executors of Sir Richard Whittington; his statue, with the traditional cat, remained in a niche until its final demolition. The gate was destroyed in the fire of 1666, and rebuilt (whence its name of "Newgate"), and subsequently demolished to make way for the present prison, which was completed in 1780. A description of one of the wards, as existing more than half a century since, states: "It is a long room, lighted on one side by high, semi-circular windows or fan-lights; against the opposite wall are two rows of sleeping places, one under the other, and bearing some resemblance to the cabin berths of a ship; each was provided with two rugs and a pillow; the only furniture in the room was a long deal table and a couple of forms; a comfortable fire burned in a grate at the end."

At the time the above was written Newgate was no longer specially used as a place of punishment, it was a prison of transit, or jail set apart for the safe custody of untried prisoners whose guilt remained to be proved; of persons, in fact, who, having been examined before the magistrates, have had circumstances of suspicion brought against them sufficiently strong to warrant their being committed to Newgate for trial either at once or

in default of bail. It was therefore considered manifestly unjust to render a residence in Newgate under such circumstances so irksome as to amount to a punishment, over and above the mere confinement, which was a punishment in itself, although not for a very protracted period, inasmuch as the sessions occurred so frequently.

At this period there were in Newgate prison no less than fifteen condemned cells. These were small, narrow pens, scantily lighted by a high and barred window; in one corner a metal wash-basin was fixed to the wall, and there was an iron bed which all but filled the rest of the space. In still more remote times than those now mentioned, each of these dismal cells held four prisoners, all condemned to death and loaded with irons.

The prisoners admitted to Newgate fifty years ago were possibly less cleanly in their habits than the criminals of the present time; at all events, all new comers were even then compelled to use the bath-rooms then provided, and their clothing was disinfected by some baking process, probably similar to that adopted in modern disinfecting chambers. The clothing, however, appears to have frequently suffered under the process to such an extent that the prison authorities found it occasionally necessary to provide new garments.

About forty years since, military prisons were occasionally merely groups of huts, inclosed by high wooden palings, all the supports, etc., being on the outside, the inside being flat and bare of all breaks or projections. These were guarded by chains of sentries inside and out. The prison huts had only one door and a fireplace at the opposite end instead of a stove in the centre, iron stanchions secured all the windows, and the door was fastened with a double lock which could only be fastened or opened from the outside, the warder in charge had a small bunk next the door; the arrangements were such as to make it extremely difficult for a prisoner to escape.

The punishment of long continued solitary confinement was very common in former times, but it is a punishment which no one has a right to inflict upon another, as its results have been disastrous and its tortures very great. At the Spinning House at Cambridge, where there were two cells termed solitary, the keeper declared that he was afraid to confine female prisoners lest they should attempt suicide; and even male prisoners have been known to die, apparently from fright caused by a superstitious dread of solitary confinement. There can be no doubt that long-continued solitary confinement causes a cruel suffering both in body and mind—

"As he passed through Coldbath Fields he looked at a solitary cell, And he was well pleased, for it gave him a hint for improving his prisons in hell!"

Newgate prison was restored by Wren in 1672, after the Great Fire, but it was burnt to the ground in the riots of 1780. The iron bars are said to have been eaten through, and the stones vitrified by the intense heat. On the top of old Newgate was a windmill which was an early attempt to provide ventilation, for about 1770 a contagious disease, then called the "gaol distemper," greatly affected numbers of prisoners, and even carried its contagion into courts of justice, when trials were held; and for this reason this early ventilator was placed in position to expel the foul air, and make way for such fresh air as could be obtained. It is said that during the sessions herbs were spread in the courts of justice and in the corridors adjacent for the purpose of preventing infection. At the present time liquid disinfectants are occasionally used in the London police-courts, and are sprinkled about the floors immediately before the public and prisoners are admitted to the court-rooms.

The prison of Newgate was considered one of the best designs of George Dance. The design certainly has the effect of impressing a sense of great security and solid construction, but it was still unfinished when, in 1780, Newgate was attacked by Lord George Gordon's rioters, who broke open the occupied portion, and set at liberty many prisoners. It was 297ft. in length by 115ft. in breadth, and the outer walls 3ft. in thickness. Years ago

there were, it is said, 800 prisoners confined at one time, and when a severe fever raged the female prisoners (of whom there were more than a hundred) were allowed a sleeping space of only 18in. each in breadth. It was not until about the year 1808 that any whitewashing of the cells was regularly attended to. After this period the cells were whitewashed and cleansed at least twice a year. In later times the prison was reconstructed upon the cellular system, the front portion being finished about forty years ago. In the middle a large central corridor was arranged to occupy the whole length of the structure, and on each side four galleries were planned to communicate with the cells of the prisoners. No fireplaces were placed in the cells, but warming and ventilation was provided for by the admission of fresh air from an altitude of about forty feet, conveyed downwards, and which, passing through a shaft under the building, was arranged to come into contact with a series of pipes heated by steam. This heated air was contrived by a series of flues, so as to pass into each cell by openings, each with an area of about sixty inches; the foul air being conveyed to an upcast shaft provided with steam pipes to rarify the air, and procure the necessary circulation. For the purposes of warming and ventilation, two steam boilers have been provided, each 18ft. long by 5ft. 6in. diameter. The basement of the prison was arranged to contain the reception and punishment cells, bath-rooms, boiler-house, and stores. The building is so isolated that if a prisoner in his attempt to escape gained the roof, he could not possibly get away without the risk of death. Great improvements were effected by the new system adopted, by affording more adequate accommodation for the officers in charge of the inmates, and the provision of airing-courts for the pur-



SECTION

FIG. 5A.

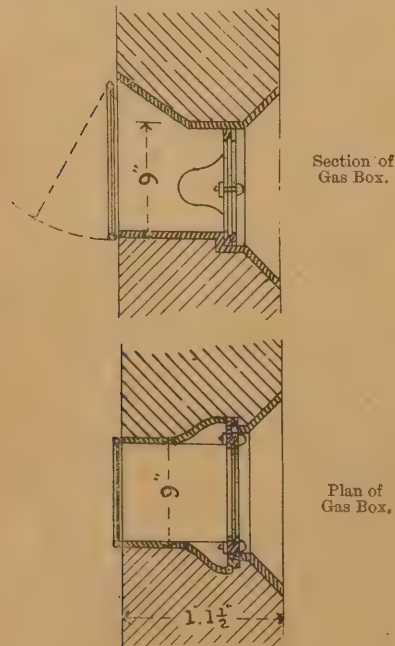
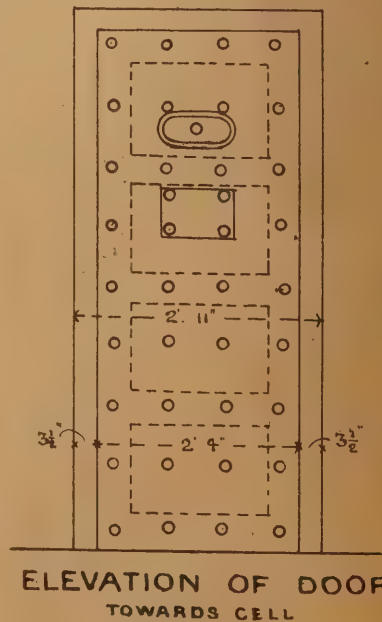


FIG. 6.



ELEVATION OF DOOR
TOWARDS CELL

FIG. 6A.

pose of enabling the prisoners to take outdoor exercise.

It was not until the year 1817 that the treadmill was introduced into English prisons. It appears to have been introduced by a person named Cubitt, an engineer, and was first used at the Brixton Prison.

George Dance also built the City House of Correction in 1791, to take the place of an inferior prison in Wood Street, which adjoined,

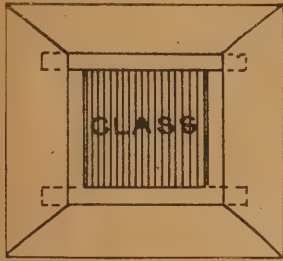
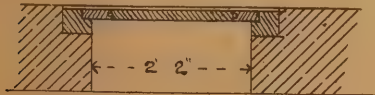


FIG 6B. ELEVATION OF GAS BOX TOWARDS GAS CELL.

or was near to Christ's Hospital, and was closed in 1854, since when it has been taken down.

A little later than 1791, the Horsemonger Lane Prison was designed by the celebrated architect, George Gwilt. John Howard, however, is said to have suggested the plan of this prison, which was intended for debtors and criminals.

The cells of the Pentonville Prison, which was commenced in 1840, were 13ft. 6in. long by 7ft. 6in. wide and 9ft. high. These dimensions are rather greater than now considered necessary for police stations, as 13ft. by 7ft. by 9ft. are at present the usual figures. Each



PLAN OF DOOR

FIG. 5B.

cell at Pentonville is said to have cost £180, whereas the cells at Millbank Prison cost no less than at the rate of £500 per cell.

So late as the year 1812 the "New Prison" at Clerkenwell was provided with cells in which the prisoners slept in their rugs upon a boarded floor, even straw being denied them. Straw was allowed at the Coldbath Fields Prison in 1799, but the windows to the cells had no glass in them, merely the usual iron guard-bars.

As the architect of "New Prison" was compelled to raise the ground 7ft. above the original level of the site, it is probable that the locality was damp and very little above flood levels, and therefore especially unsuitable for a habitation for prisoners.

(To be continued.)

DILAPIDATIONS.*

By PROF. HENRY BUSHELL, F.S.I.

(Continued from page xliii.)

THE meaning of to "substantially repair," &c., was explained in *Monk v. Noyes*, wherein the tenant was held responsible for keeping up the internal painting. *Harris v. Jones* is a prominent case in regard to the value of the phrase "in good substantial repair and condition." This was an action brought in 1832 by the lessor against lessee on a covenant to repair contained in a lease, by which plaintiff demised a messuage to the defendant for six years from Michaelmas, 1824, at fifty guineas per annum. The covenant was to well and sufficiently repair, uphold, &c., &c., and keep the premises, &c., and should and would deliver up, &c., "in good substantial repair and condition." There was also a specific covenant to paint externally every third year, and internally every fifth year. Chief Justice Tindal regarded the words to imply that the covenants were to be substantially complied with, for that in cases of this nature it was hardly to be expected that a strict and literal performance of so general a covenant (unless where the language pointed to any particular matter) could be proved. The defendant was only bound to keep up the house as an old house, not to give the plaintiff

THE BENEFIT OF NEW WORK;

and upon the whole the jury were to say whether the particulars of non-repair enumerated by plaintiff's witnesses were dilapidations amounting to a substantial breach of the covenants; as to the other breach of covenant (for not painting the inside in the fifth year), the plaintiff was entitled to nominal damages. A verdict was given for defendant. A rule nisi was obtained for a new trial, but the rule was discharged. This important case establishes the precedent that a general covenant to repair is satisfied by the lessee keeping the premises in substantial repair; a literal performance of the covenant is not to be required. In the earlier portion of my paper I have referred generally to the mitigating effect which certain circumstances have in regard to dilapidations, which by some practitioners are underrated or disregarded when making the claim. It is well established that where a lessee covenants to keep old premises in repair, he is not liable for such dilapidations as result from "the natural operation of time and the elements." The case of *Gutteridge v. Munyard* (1834) is quoted as an authority by most of the text-books, and was cited in my previous paper. I trust you will, however, permit me to give one extract from the summing-up of Chief Justice Tindal, wherein he states: "That where a very old building is demised and the lessee enters into a covenant to repair, it is not meant that the old building is to be restored in a renewed form at the end of the year, or of greater value than it was at the commencement of the term.

* A paper entitled "The Practical Application of the Principles and Law of Dilapidations," read before the Auctioneers' Institute.

What the natural operation of time flowing on effects, and all that the elements bring about in diminishing the value, constitute a loss which, so far as it results from time and nature, falls on the landlord." I think that this aptly illustrates what is embraced by the effect of "the natural operation of time and the elements," and which is essentially a question for the surveyor to determine. This being so, it resolves itself into a question of opinion or expert evidence to be given by surveyors on the one side, or the other. In intimate relationship with the foregoing may be considered the different expressions of "wear and tear," or "use and wear," which should be worked out upon similar lines, and which crop up in some of the cases already quoted. I think that to the surveyor it should suggest a reasonable interpretation. How? Again I submit that he must realise what would be the result of a proper use and occupancy of the demised premises for a given period and for a specific purpose; in other words,

WHAT IS THE PROPER DEPRECIATION

in view of the circumstances? The relationship between lessee and under-lessee in the matter of covenants to repair, demand our careful discrimination. Covenants to repair inserted in an under-lease, although worded precisely the same as in the original lease, must be interpreted differently in point of degree, on account of the more recent date of the under-lease. It will, therefore, invariably be incumbent on the surveyor to decide in what degree, or to what extent, the under-lessee's liability differs from that of the lessee's. The Courts have well decided that, although the covenants are the same in language, if there be a sufficient interval of time between the lease and the under-lease then they may be substantially different in degree; therefore, in considering a general covenant to repair, due regard must be had to the age and condition of the premises at the time when the particular covenant begins to operate. An excellent case in illustration of this is *Walker v. Hatton*, tried in 1842. In my former paper, read before the Auctioneers' Institute, I explained, by way of illustration with some amount of detail, at least many of the leading items of dilapidations likely to be met with in ordinary or domestic buildings. That, I trust, will be sufficient apology for my treating now only two or three questions arising out of liability to repair.

REGARDING ORIGINAL FAULTY CONSTRUCTION

it appears to me to be iniquitous that a lessee, under any ordinary circumstances, should be responsible for defects of such a serious nature, although he is supposed to treat for the property with his eyes open.

(To be continued.)

THE Local Government Board has approved of the plans of the Milton Valley water scheme for the supply of Pembroke Dock and the Government Dockyard, and authorising the Council to borrow £23,000 for the purpose of carrying out the works in connection with the same.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Feb. 5	Bradley, near Huddersfield—Erection of Vicarage	Guardians of Atcham Union	T. H. Farrar, Fountain-chambers, Fountain-st., Halifax.
5	Cross Houses, nr. Shrewsbury—Workhouse Wards, &c.		J. R. Withers, Architect, St. Mary-court, Shrewsbury.
5	Marykirk, Montrose—School		Burness and Dickson, Solicitors, Montrose.
5	Raphoe, Ireland—Residence		J. W. Rounthwaite, 13, Mosley-street, Newcastle-on-Tyne.
5	Inverness—Additions to District Asylum		Ross and Macbeth, Queen's Gate-chambers, Inverness.
7	Bakewell—Erection of Boundary Wall, &c.	Guardians	A. Hawes, Clerk, Union Offices, Bakewell.
7	Cwmbran, Mon.—Erection of Police Station, &c.	Standing Joint Committee	W. Tanner, County Surveyor, Cwmbran, Mon.
7	Exmouth—Alteration, &c., to Premises	J. Pulsford	R. M. Challice, 9, Bedford-circus, Exeter.
7	Keith, Scotland—Shop and House Works	— McWillie	J. Alcock, Architect, Keith.
7	Lochlee, Scotland—Works of Servants' Rooms		Jenkins and Marr, 16, Bridge-street, Aberdeen.
7	Sandbach—Alterations to Shop, &c.	Industrial Co-operative Society Limited	A. Price, Architect, Sandbach.
7	Dobwalls, Cornwall—Erection of Villa		J. Congdon, Doublebois, near Liskeard.
8	Appleton Wiske, Yorks.—Masonry to Bridge		Highway Surveyor, Northallerton.
8	Hexham—Gasholder Tank	Gas Company	Hexham Gas Company's Office, Gas Works, Hexham.
8	Waterfoot, Lancs.—Erection of Eight Cottages	Co-operative Industrial Society Limited	S. T. Williams, Architect, St. James's-chambers, Waterfoot.
8	Plaistow—Walling, Wrought-iron Fencing	West Ham Corporation	L. Angell, Engineer, Town Hall, Stratford, E.
8	Leigh, Lancs.—Fourteen Cottages	Urban District Council	Banks and Co., Architects, Church-street, Leigh.
9	Saltair—Erection of Four Houses		J. Young and Co., 62, Market-street Bradford.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Feb. 9	Stowmarket—Erection of Villa Residence, &c. ...	G. Diaper ...	H. G. Bishop, Architect, Market-place, Stowmarket.
" 9	Wimbledon—Electric Lighting Station & Chimney Shaft	Urban District Council ...	A. H. Preece, 39, Victoria-street, Westminster, S.W.
" 10	Killybegs, Ireland—Completion of School...		A. Bruntz, 53, Lower Drumcondon-road, Dublin.
" 11	Dungess, Kent—Erection of 11 Dwelling Houses, &c.	Lords Commissioners of the Admiralty	Director of Works Dept., 21, Northumberland-avenue, W.C.
" 12	Firdhorn, Scotland—Erection of Villa, &c. ...		J. Forrest, 139, High-street, Forres.
" 12	Warkworth, Alnwick—Improving Bridge ...	Alnwick Rural District Council ...	H. W. Walton, Clerk, Council Offices, Alnwick.
" 14	Hastings—Boundary Walls, Clarification Works	Corporation ...	P. H. Palmer, Borough Engineer, Town Hall, Hastings.
" 14	Rowley Regis—Water Closets, Alterations to School, &c.	School Board ...	J. T. Meredith, Architect, Kidderminster.
" 14	Uckfield, Sussex—Erection of Casual Wards, &c.	Guardians ...	F. Holman, Clerk, Workhouse, Lewes.
" 15	Cowling, Yorks.—Erection of Warehouse ...	J. Binns and Sons Limited ...	J. Hartley, Architect, Exchange-buildings, Skipton.
" 15	Fawley, Hants.—Erection of School, &c. ...	School Board ...	Mitchell, Son, & Gutteridge, 9, Portland-st., Southampton.
" 16	Redbridge, near Southampton—Factory Buildings, &c.	Schultze Gunpowder Company ...	Lemon & Bizard, Lansdowne House, Castle-la., Southampton.
" 16	Stoke-upon-Trent—Vagrant Wards, &c. ...	Union Guardians ...	C. Lyman, Architect, Stoke-upon-Trent.
" 16	Notting Hill, W.—New Church Vestries	All Saints' Church ...	Borcham and Morton, Quantity Surveyors, Sunderland.
" 17	Gravesend—Erection of Market, Fire Engine Station, &c.	Town Council ...	E. J. Bennett, 24, Darnley-road, Gravesend.
" 19	Uppermill—Masonry Works to Bridge	West Riding County Council ...	Rowbotham, Clerk to Urban District Council, Uppermill.
" 21	Leeds—Erection of Four Shops		Town Clerk, Town Hall, Leeds.
" 21	Nenth, Wales—Erection of Schools ...	School Board ...	J. C. Rees, Architect, St. Thomas's-chambers, Nenth.
" 22	St. Ives, Cornwall—Chapel and Schoolroom	Committee ...	W. Faulk, Fore-street, St. Ives, Cornwall.
Mar. 1	Llanrwst—Alterations, &c. to Court House	Denbighshire Standing Joint Committee	R. L. Williams, 5, Castle-street, Ruthin, Denbigh.
" 19	Llangathen, Wales—Stone Bridge over River Towy	Cardiff County Council ...	T. Jones, Clerk, County Council Offices, Llandoverly.
" 19	Hereford—Cleaning-down Shire Hall, &c. ...	Standing Joint Committee	County Surveyor, Shire Hall, Hereford.
No date.	Clifton, Bristol—Erection of Chapel	Trustees of Free Methodist Chapel	A. E. F. Trew, 22, Broad-street, Bristol.
"	Ilkley—Erection of Laundry, Cottages, &c.	Sanitary Steam Laundry Co. Ltd.	Baxendall and Critchley, Architects, The Grove, Ilkley.
"	Leeds—Two Houses, Shops, &c. ...		Primrose, Meadow-road, Leeds.
"	London—Erection of Small Houses, &c. ...		Architect, 60, Watling-street, E.C.
"	Newark—Six Residences	Miss Stevens ...	A. Friend, 50, Bridge-road, Newark.
"	Stanley, Durham—Erection of Hotel	H. Chaytor ...	E. Bowman, 52, Westgate-road, Newcastle.
"	Starbeck, Harrogate—Erection of Club House	Harrogate Golf Club	B. Wilson, 12, East-parade, Leeds.
"	Ventnor, Isle of Wight—Chimney of Electricity Works		E. J. Harvey, Architect, Assembly Rooms, Ventnor.
"	Newport, Isle of Wight—Walls, &c. at Burial Ground	Burial Committee ...	E. A. Swane, 30, Nodehill, Newport, Isle of Wight.
"	Leigh, Lancs.—Seven Houses ...		Dr. Pollard, Railway-road, Leigh.
"	Exeter—Additions to Premises	A. J. Hamlin ...	E. G. Warren, Architect, Commercial-chambers, Exeter.
"	Barton-on-Humber—Ten Houses and Brick Culvert	J. B. Tombleson ...	Manager, Westfield Brickyard, Barton-on-Humber.
"	Basing, Hants—Infirmary	Basingstoke Union ...	R. S. Wallis, Architect, Basingstoke, Hants.
"	Longton, Staffs.—Library Building and Institute	Corporation ...	Wood and Hutchings, Architect, Tunstall.
"	West Hartlepool—Twelve Cottages ...		R. Corner, 17, Reed-street, West Hartlepool.
"	Ligoniel, Ireland—Extensions to Inn	M. Gormley ...	W. J. Moore, Architect, Whitehall-bldgs., Ann-st., Belfast.
"	Claycross—House and Shop ...	R. Marshall ...	W. M. Ashmore, Architect, New Queen-st., Chesterfield.
ENGINEERING—			
Feb. 7	Belfast—Supply, &c., of Steam Crane	Harbour Commissioners ...	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 7	Swansea—Reconstruction of Storm Water Overflow	Urban Sanitary Authority ...	R. H. Wyrill, Engineer, Guildhall, Swansea.
" 8	Rhyl—Construction of Sea Wall, Promenade, &c.	Urban District Council ...	B. Hughes, Town Surveyor, Clywd-street, Rhyl.
" 9	Edinburgh—Extension of Harbour	Fishery Board of Scotland	D. and C. Stevenson, 84, George-street, Edinburgh.
" 14	Leeds—Laundry Machinery	Union Guardians ...	T. Winn, 90, Albion-street, Leeds.
" 19	Bochdale—Dynamos, Ballancer, and Boosters, &c.	Corporation ...	Lacey, Clirehugh, and Sillar, 10, Delahay-st., Westminster.
" 22	Plymouth—Construction of Dock Entrance, &c.	Great Western Railway Company	Engineer, G.W.R. Station, Plymouth.
Mar. 12	Dorstone, Hereford—Carriage Bridge	County Council ...	H. T. Wakelam, County Surveyor, Shire Hall, Hereford.
" 17	Sophia, Bulgaria—Electric Lighting Town		The Mayor, Sophia, Bulgaria.
July 31	Tangier—Water Supply ...	Hygienic Commission	Commercial Department, Foreign Office, London, S.W.
No date.	Northampton—Water Main, Reservoir, &c.	Rural District Council ...	W. Hull, 12, St. Giles's-street, Northampton.
"	Llanberis, N. Wales—Driving Tunnel		Manager, Upper Glynrhonwy Slate Co., Llanberis, N. Wales.
IRON AND STEEL—			
Feb. 7	London, E.C.—Supply of Files	Burma Railways Co. Ltd. ...	Company's Offices, 76, Gresham House, Old Broad-st., E.C.
" 7	Belfast—Various Stores (Twenty Contracts)	Belfast and Northern Counties Rly. Co.	—Ellis, Stores Superintendent, York-rd., Station, Belfast.
" 7	St. Marylebone, W.—Works and Materials (Various)	Vestry ...	W. H. Garbutt, Clerk, Court House, St. Marylebone, W.
" 7	East Ham, E.—Supply, &c., of Wrought-iron Fencing, &c.	Urban District Council	W. H. Savage, Council's Surveyor, Public Offices, East Ham, E.
" 9	Barrow-in-Furness—Supply of Stores and Materials	Corporation ...	Borough Engineer, Town Hall, Barrow-in-Furness.
" 9	Halifax—Iron and Steel Work	Corporation ...	T. Holgate, Gas Engineer, Halifax.
" 10	Dublin—Construction of Steel Masts	Commissioners of Irish Lights	O. Armstrong, 23, Westmoreland-street, Dublin.
" 10	London, S.W.—Nails, Screws, Wire, &c. (4 Contracts)	Admiralty ...	Director of Navy Contracts, Admiralty, London, S.W.
" 10	Birmingham—Various Materials and Goods	Public Works Committee ...	City Surveyor, Council House, Birmingham.
" 12	Ilkley—Supply of Cast-iron Socket Pipes	Urban District Council	W. B. Woodhead and Son, 18, Exchange, Bradford.
" 12	Belfast—Various Stores	Belfast and County Down Rly Co.	T. J. Brittain, Secretary, Queen's Quay Terminus, Belfast.
" 16	Birkenhead—Supply of Stores and Materials	Corporation ...	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 21	London, S.W.—Supply of Steel Rails and Fishplates		Agent-General for Victoria, 15, Victoria-street, S.W.
PAINTING AND PLUMBING—			
Feb. 5	Halifax—Painting Works, &c., at Cemetery	Corporation ...	E. R. S. Escott, C.E., Town Hall, Halifax.
" 7	Manchester—Painting (Sixteen Contracts)	Lancs. and Yorks. Railway Co. ...	Engineer, Hunt's Bank, Manchester.
ROADS—			
Feb. 7	Leadgate, Durham—Road-making ...	Urban District Council	J. H. Coupland, Clerk, Shotley Bridge, Co. Durham.
" 7	Pudsey, Yorks.—Street Works	Urban District Council	J. Jones, Surveyor, Council Offices, Pudsey.
" 7	St. Marylebone, W.—Broken Stone, Kerb, &c.	Vestry ...	W. H. Garbutt, Clerk, Court House, St. Marylebone, W.
" 10	Battersea, S.W.—Works, Services, and Materials	Vestry ...	J. T. Pilditch, Municipal-buildings, Lavender-hill, S.W.
" 12	Birmingham—Granite Kerb, Setts, Flags, &c.	Public Works Committee ...	City Surveyor, Council House, Birmingham.
" 12	Nottingham—Formation of Road	Public Parks Committee ...	A. Brown, City Engineer, Guildhall, Nottingham.
" 12	Oundle—Cartage, &c., of Slag and Granite	Rural District Council	N. E. Dixon, Council's Surveyor, Oundle.
" 13	Hendon, N.W.—Granite, Limestone, Slag, &c.	Urban District Council	S. S. Grimley, Public Offices, Hendon, N.W.
" 14	Islington, N.—Wood Paving	Vestry ...	J. P. Barber, Vestry Hall, Islington, N.
" 15	Westminster, S.W.—Works and Repairs, Ballast, &c.	Vestry ...	G. R. W. Wheeler, Town Hall, Caxton-street, S.W.
" 16	Birkenhead—Horses, &c., for Street Watering, &c.	Corporation ...	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 16	Birkenhead—Supply of Flags, Granite, &c.	Corporation ...	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 17	West Bridgford, Notts.—Paving Footpaths, &c.	Urban District Council	W. Fare, Surveyor's Office, Bridge-grove, West Bridgford.
" 28	Manchester—Supply of Horses, &c.	Watch Committee ...	Deputy Chief Constable, Town Hall, Manchester.
March 9	Belper—Road Materials	Rural District Council	R. C. Cordon, Surveyor, Hazelwood, Derby.
No date.	Shipley, Yorks.—Street and Sewer Works		W. B. Woodhead and Son, 18, Exchange, Bradford.
"	Worcester—Supply of Road Stone		J. H. Garrett, County Rd. Surveyor, County Hall, Worcester.
SANITARY—			
Feb. 5	Denton, Lancs.—Sewerage Works	Urban District Council	Lomax and Lomax, 11, Fold-street, Bolton.
" 5	Gullane, Scotland—Construction of Outfall Sewer	Haddington County Council	Belfrage and Carfrue, 1, Erskine-place, Edinburgh.
" 5	Houghton-le-Spring—Removal of House Refuse	Rural District Council	J. G. Baty, District Council Offices, Houghton-le-Spring.
" 16	Burnley—Pipes Sewers, Manholes, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
" 16	Sevenoaks—Drainage Works, &c.	Rural District Council	Fox and Taylor, Edenbridge, Kent.
Mar. 15	Tillemont, Belgium—Sewerage Works	Rural District Council	Secretariat Communal, Tillemont, Belgium.
No date.	East Greenwich, S.E.—Water-closets, &c.	Henry Rifled Barrel, Engineering and Small Arms Co.	Offices, Woolwich-road, East Greenwich, S.E.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 28	Winchester—Plans for Public Baths	£25, £15	Town Council
Mar. 1	Newcastle-on-Tyne—New Infirmary (Local Architects)	(No First), £150, £100, £50	Building Committee.
" 14	Berwick-on-Tweed—Plans of Police Station & Lock-up	£50, £25	Corporation.
" 31	Singapore—Designs for Town Hall	£200, £100	Major Cameron, R.E., Colonial Offices, Downing-st., S.W.
Aug. 31	Stockholm—Designs for Stations, Junctions, &c.	£656, £438, £219	Royal Administration of State Railways.
No date.	Ecclemachan, Linlithgowshire—Lunatic Asylum		Edinburgh District Lunacy Board.

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